NAVSHIPS 93286 (Non-Registered)

1799

TECHNICAL MANUAL

for

ANTENNA COUPLER GROUP AN/SRA-22

COLLINS RADIO COMPANY

CEDAR RAPIDS, IOWA

DEPARTMENT OF THE NAVY

BUREAU OF SHIPS

SUBJECT: Suggested EIB article, purpose, to improve operating sequence of antenna transfer relay K-3 of C-2698/SRA-22 and K-1 of CU-737.

Change #_____ to all AN/URC-32

Change #_____ to all AN/URC-32A

Change #_____ to all KWT6-8

Factory accomplished to AN/URC-32B.

Reason for Change: To improve operating sequence of the coax contacts portion of relay K-3 of the C-2698/SRA-22 and K-1 of the CU-737.

The coax contacts must be opened and closed with no RF energy across these contacts at the instant of opening or closing. Any RF energy across these contacts at the instant of opening or closing will cause the contacts to burn, and in C-2698/SRA-22 or CU-737 equipped with VSWR devices, the VSWR device can be triggered and take the AN/URC-32 off the air.

Change:
Delete Jumper TBJ-7 to TBH-14
Delete Jumper TBJ-15 to TBJ-16
Add Jumper TBJ-15 to TBH-14
Add Jumper TBJ-7 to TBH-12

This change now parallels the operation of the keying relay K-2 of the power amplifier AM-2061/URT and the coax contacts of relay K-3 of C-2698/SRA-22 and K-1 of the CU-737. Paralleling these relays insures that the coax contacts of relay K-3 of the C-2698/SRA and K-1 of the CU-737 will be opened and closed with no RF energy across their contacts.

It is recommended that this change be made as soon as possible.

Correct junction box diagram accordingly.

CHANGE 3 TO TECHNICAL MANUAL FOR ANTENNA COUPLER GROUP AN/SRA-22,

NAVSHIPS 93286

Change 3 updates the Technical Manual for Antenna Coupler Group AN/SRA-22, adds new material, and corrects minor errors. No temporary corrections have been made to this manual.

Maintenance Support Activities shall insert CHANGE 3 in the Technical Manual immediately upon receipt.

1. Remove superseded pages and insert revised pages as indicated below:

Page	Remove	Insert
T. P. /ii	Ch. 2/Ch. 2	Ch. 3/Ch. 3
iii/iv	Ch. 2/Ch. 2	Ch. 3/Ch. 3
v/vi	Ch. 2/Ch. 2	Ch. 3/Ch. 3
vii/viii	-/-	Ch. 3/Blank
1-1/1-2	Ch. 2/Orig	Ch. 3/Ch. 3
1-3/1-4	Orig/Orig	Ch. 3/Ch. 3
1-5/2-0	Ch. 2/Ch. 2	Ch. 3/Ch. 3
2-1/2-2	Ch. 2/Ch. 2	Ch. 3/Ch. 3
2-7/2-8	Ch. 1/Ch. 2	Ch. 3/Ch. 3
2-9/2-10	Ch. 2/Blank	Ch. 3/Blank
3-1/3-2	Ch. 2/Ch. 2	Ch. 3/Ch. 3
3-3/3-4	Ch. 2/Ch. 2	Ch. 3/Ch. 3
3-5/3-6	Ch. 2/Ch. 2	Ch. 3/Ch. 3
3-7/3-8	-/-	Ch. 3/Blank
4-1/4-2	Ch. 2/Ch. 1	Ch. 3/Ch. 1
4-5/4-6	Ch. 2/Ch. 2	Ch. 3/Ch. 3
4-7/4-8	Ch. 2/Ch. 2	Ch. 3/Ch. 2
4-9/4-10	Ch. 2/Orig	Ch. 3/Ch. 3
4-11/5-0	Blank/Orig	Ch. 3/Orig
5-1/5-2	Ch. 2/Orig	Ch. 3/Ch. 3
5-3/5-4	Ch. 2/Orig	Ch. 3/Ch. 3
5-5/5-6	Ch. 1/Ch. 1	Ch. 3/Ch. 3
5-7/5-8	Orig/Orig	Ch. 3/Ch. 3
5-9/5-10	Orig/Ch. 2	Ch. 3/Ch. 3
5-11/5-12	Ch. 2/Ch. 2	Ch. 3/Ch. 3
5-13/5-14	Ch. 2/Ch. 2	Ch. 3/Ch. 3
5-15/5-16	Ch. 2/Ch. 2	Ch. 3/Ch. 3
5-17/5-18	Ch. 2/Ch. 2	Ch. 3/Ch. 3
5-19/5-20	Ch. 2/Blank	Ch. 3/Ch. 3
5-21/5-22	Ch. 2/Ch. 2	Ch. 3/Ch. 3
5-23/ through 5-48	-/-	Ch. 3/Ch. 3
6-1/6-2	Orig/Ch. 2	Orig/Ch. 3
6-2A/6-2B	Ch. 2/Ch. 2	
6-2C/6-2D	Ch. 2/Ch. 2	
6-2E/6-2F	Ch. 2/Ch. 2	
6-3/6-4	Orig/Ch. 1	Ch. 3/Ch. 3
6-5/6-6	Ch. 2/Orig	Ch. 3/Ch. 3
6-7/6-8	Ch. 2/Ch. 2	Ch. 3/Ch. 3

Page	Remove	Insert
6-8A/6-8B	Ch.2/Ch.2	
6-8C/6-8D	Ch.2/Ch.2	
6-8E/Blank	Ch.2/Blank	
6-9/6-10	Orig/Orig	Ch.3/Ch.3
6-11/6-12	Orig/Ch.2	Ch.3/Ch.3
6-13/6-14	Ch.2/Ch.2	Ch.3/Ch.3
6-15/6-16	Ch.2/Orig	Ch.3/Ch.3
6-17 through 6-30	-/-	Ch.3/Ch.3
6-31/6-32	-/-	Ch.3/Blank
i-1/i-2	Ch.2/Ch.2	Ch.3/Ch.3
i-3/i-4	Ch.2/-	Ch.3/Blank

2. After checking complete manual against the "List of Effective Pages," destroy superseded pages.

3. Insert this Instruction Sheet just behind the front cover page immediately above the Instruction Sheet of Change 2.

4. Make appropriate entry on Correction Page.

INSTRUCTION SHEET
FOR
CHANGE 2 TO TECHNICAL MANUAL FOR ANTENNA COUPLER GROUP AN/SRA-22

NAVSHIPS 93286

Change 2 updates the technical manual to cover equipment production modifications, adds new material, and corrects minor errors. No temporary corrections are superseded by Change 2.

Maintenance Support Activities shall insert Change 2 in the technical manual immediately upon receipt. Although this change provides information on equipment production modifications, the technical manual with Change 2 continues to cover original equipment.

1. Remove superseded pages and insert revised pages as indicated below:

Page	Remove	Insert
T.P./ii	Ch. 1/Ch. 1	Ch. 2/Ch. 2
iii/iv	Orig/Orig	Ch. 2/Ch. 2
v/vi	Ch. 1/Orig	Ch. 2/Ch. 2
1-1/1-2	Orig/Orig	Ch. 2/Orig
1-5/2-0	Orig/Orig	Ch. 2/Ch. 2
2-1/2-2	Orig/Orig	Ch. 2/Ch. 2
2-3/2-4	Orig/Orig	Ch. 2/Ch. 2
2-7/2-8	Ch. 1/Ch. 1	Ch. 1/Ch. 2
2-9/2-10		Ch. 2/Blank
3-1/3-2	Orig/Ch. 1	Ch. 2/Ch. 2
3-3/3-4	Orig/Orig	Ch. 2/Ch. 2
3-5/3-6	Orig/Orig	Ch. 2/Ch. 2
4-1/4-2	Orig/Ch. 1	Ch. 2/Ch. 1
4-3/4-4	Orig/Ch. 1	Orig/Ch. 2
4-5/4-6	Ch. 1/Ch. 1	Ch. 2/Ch. 2
4-7/4-8	Ch. 1/Ch. 1	Ch. 2/Ch. 2
4-9/4-10	Ch. 1/Orig	Ch. 2/Orig
5-1/5-2	Orig/Orig	Ch. 2/Orig
5-3/5-4	Orig/Orig	Ch. 2/Orig
5-9/5-10	Orig/Orig	Orig/Ch. 2
5-11/5-12	Orig/Orig	Ch. 2/Ch. 2
5-13/5-14	Ch. 1/Orig	Ch. 2/Ch. 2
5-15/5-16	Ch. 1/Orig	Ch. 2/Ch. 2
5-17/		/Ch. 2
5-18/	Ch. 1/	Ch. 2/
5-19/5-20	Ch. 1/	Ch. 2/
5-21/5-22	Ch. 1/Ch. 1	Ch. 2/Ch. 2
6-1/6-2	Orig/Orig	Orig/Ch. 2
6-2A/		Ch. 2/
6-2B/		Ch. 2/
6-2C/		Ch. 2/
6-2D/		Ch. 2/
6-2E/		Ch. 2/
6-2F/		Ch. 2/
6-5/6-6	Orig/Orig	Ch. 2/Orig.

Page	Remove	Insert
6-7/6-8	Ch. 1/Orig	Ch. 2/Ch. 2
6-8A/		Ch. 2/
6-8B/		Ch. 2/
6-8C/		Ch. 2/
6-8D/		Ch. 2/
6-8E/		Ch. 2/
6-11/6-12	Orig/Ch. 1	Orig/Ch. 2
6-13/6-14	Orig/Ch. 1	Ch. 2/Ch. 2
6-15/6-16	Ch. 1/Orig.	Ch. 2/Orig.
i-1/i-2	Orig/Orig	Ch. 2/Ch. 2
i-3/	Orig/	Ch. 2/

2. After checking complete manual against the "List of Effective Pages," destroy superseded pages.

3. Insert this instruction just behind the front cover immediately above the Change 1 Instruction Sheet.

4. Make appropriate entry on Correction Page.

INSTRUCTION SHEET
FOR
CHANGE 1 TO TECHNICAL MANUAL FOR ANTENNA COUPLER GROUP AN/SRA-22

NAVSHIPS 93286

This permanent change revises the technical manual to correct errors in the original publication and is effective upon receipt.

Maintenance Support Activities and holders of equipment accompanied by technical manuals shall insert this change in the technical manual immediately upon receipt.

1. Remove superseded pages and insert revised pages as indicated below:

Page	Remove	Insert
T. P. /ii	Orig/Orig	Ch. 1/Ch. 1
v/vi	Orig/Orig	Ch. 1/Orig.
2-7/2-8	Orig/Orig	Ch. 1/Ch. 1
3-1/3-2	Orig/Orig	Orig/Ch. 1
4-1/4-2	Orig/Orig	Orig/Ch. 1
4-3/4-4	Orig/Orig	Orig/Ch. 1
4-5/4-6	Orig/Orig	Ch. 1/Ch. 1
4-7/4-8	Orig/Orig	Ch. 1/Ch. 1
4-9/4-10	Orig	Ch. 1/Ch. 1
5-0	Orig	Orig
5-5/5-6	Orig/Orig	Ch. 1/Ch. 1
5-13/5-14	Orig/Orig	Ch. 1/Orig
5-15/5-16	Orig/Orig	Ch. 1/Orig
5-18	Orig	Ch. 1
5-19/5-20	Orig	Ch. 1
5-21/5-22	Orig/Orig	Ch. 1/Ch. 1
6-3/6-4	Orig/Orig	Orig/Ch. 1
6-7/6-8	Orig/Orig	Ch. 1/Orig
6-11/6-12	Orig/Orig	Orig/Ch. 1
6-13/6-14	Orig/Orig	Orig/Ch. 1
6-15/6-16	Orig/Orig	Ch. 1/Orig

2. After checking complete manual against the "List of Effective Pages," destroy superseded pages.

3. Insert this Instruction Sheet just behind the front cover immediately above the Title Page.

4. Make appropriate entry on Correction Page.

NAVSHIPS 93286 (*Non-Registered*)

TECHNICAL MANUAL

for

ANTENNA COUPLER GROUP AN/SRA-22

COLLINS RADIO COMPANY

CEDAR RAPIDS, IOWA

DEPARTMENT OF THE NAVY

BUREAU OF SHIPS

Contract: NObsr [redacted] *Approved by BuShips: 30 JANUARY 1959*

CHANGE 3: 27 December 1962

[illegible]

LIST OF EFFECTIVE PAGES

PAGE NUMBERS	CHANGE IN EFFECT	PAGE NUMBERS	CHANGE IN EFFECT
Title Page	Change 3	4-3	Original
ii thru viii	Change 3	4-4	Change 2
1-1 thru 1-5	Change 3	4-5 thru 4-7	Change 3
2-0 thru 2-2	Change 3	4-8	Change 2
2-3 and 2-4	Change 2	4-9 thru 4-11	Change 3
2-5 and 2-6	Original	5-0	Original
2-7 thru 2-10	Change 3	5-1 thru 5-48	Change 3
3-1 thru 3-8	Change 3	6-1	Original
4-1	Change 3	6-2 thru 6-32	Change 3
4-2	Change 1	i-1 thru i-4	Change 3

RECORD OF CORRECTIONS MADE

CHANGE NO.	DATE	FIELD CHANGE NO.	SIGNATURE
Change 1	24 Sept 1959	None	Collins Radio Co.
Change 2	29 July 1960	None	Collins Radio Co.

TABLE OF CONTENTS

SECTION 1 - GENERAL INFORMATION

Paragraph		Page
1-1.	Introduction	1-1
1-2.	Functional Description	1-1
	a. Coupler Control C-2698/SRA-22	1-1
	b. Antenna Coupler CU-714/SRA-22	1-2
1-3.	Factory or Field Changes	1-3
1-4.	Quick Reference Data	1-3
1-5.	Equipment List	1-3
	a. Equipment Supplied	1-3
	b. Equipment and Publications Required but not Supplied	1-3
	c. Diode Complement	1-4
	d. Shipping Data	1-5

SECTION 2 - INSTALLATION

2-1.	Unpacking and Handling	2-0
2-2.	Installation Requirements	2-0
	a. Installation Pointers	2-0
	b. Outline Drawing	2-0
	c. Interconnecting Diagrams	2-0
	d. Cable Assembly	2-1
2-3.	Inspection and Adjustments	2-1
2-4.	Preparation for Reshipment	2-1

SECTION 3 - OPERATOR'S SECTION

3-1.	Functional Operation	3-1
3-2.	Operating Procedures	3-1
	a. Description of Controls	3-1
	b. Sequence of Operation with Radio Set AN/URC-32 or Other Transmitters when 50-Ohm Load is Available	3-2
	(1) Control Settings Prior to Starting	3-3
	(2) Tuning Procedure	3-3
	(3) VSWR Protective Device	3-5
	(4) Stopping the Equipment	3-5
	c. Typical Tuning Chart	3-5
	d. Precautions	3-5
3-3.	Operator's Maintenance	3-5
	a. Operator's Check	3-5
	b. Emergency Maintenance	3-6

SECTION 4 - PRINCIPLES OF OPERATION

4-1.	Over-all Functional Description	4-1
4-2.	Functional Sections	4-1

SECTION 4 - PRINCIPLES OF OPERATION (Cont)

Paragraph		Page
a.	Coupler Control C-2698/SRA-22	4-1
(1)	TAP and COIL Indicators	4-1
(2)	COIL COARSE TUNE-FINE TUNE	4-2
(3)	TAP COARSE TUNE-FINE TUNE	4-5
(4)	Directional Coupler	4-5
(5)	Transfer Relay and LOAD-ANT Switch	4-6
(6)	TUNE-OPERATE Switch	4-7
(7)	VSWR Protector	4-7
b.	Antenna Coupler CU-714/SRA-22	4-9
(1)	Capacitor Drive Circuit	4-9
(2)	Tuning and Loading	4-9
(3)	Blower	4-9

SECTION 5 - MAINTENANCE

5-1.	General	5-1
5-2.	Test Equipment and Special Tools	5-1
5-3.	Over-all Trouble Shooting	5-1
a.	Preliminary Check	5-1
b.	Control Settings	5-1
c.	System Trouble-Shooting Chart	5-1
d.	Terminal Board TB5	5-1
5-4.	Functional Section Trouble Shooting	5-4
a.	Preliminary Check	5-4
b.	Control Settings	5-4
c.	Functional Section Trouble-Shooting Chart	5-4
d.	Voltage and Resistance Measurements	5-12
5-5.	Typical Troubles	5-14
5-6.	Alignment	5-15
a.	Test Equipment and Special Tools	5-15
b.	Control Settings	5-15
c.	Potentiometer Alignment	5-15
d.	Stop Adjustments on Antenna Coupler CU-714/SRA-22	5-16
(1)	Coil Stop Adjustment	5-16
(2)	Tap Stop Adjustment	5-16
(3)	Tap Stop Actuating Too Early	5-17
(4)	Tap Stop Actuating Too Late	5-17
5-7.	Removal, Adjustment, Repair, and Reassembly of Parts and Subassemblies	5-21
a.	Removal and Disassembly of Coupler Control C-2698/SRA-22	5-21
b.	Removal and Replacement of Antenna Coupler CU-714/SRA-22 Motors, Gears, Lead Screw Assembly, and Variable Capacitor C7	5-22
(1)	Coil Motor B2	5-22
(2)	Tap Motor B3	5-24
(3)	Capacitor Motor B4	5-25
(4)	Secondary Gear Plate	5-25
(5)	Lead Screw Assembly	5-27
(6)	Motor B1 and Capacitor C6	5-27

SECTION 5 - MAINTENANCE (Cont)

Paragraph		Page
	(7) Tap Assembly and Drum Assembly Removal and Replacement	5-27
	(8) Variable Capacitor C7	5-29
c.	Complete Removal and Disassembly of Antenna Coupler CU-714/SRA-22	5-30
d.	Reassembly and Replacement of Antenna Coupler CU-714/SRA-22	5-37
	(1) Gear Subassemblies	5-37
	(2) Capacitor Home Switch S10	5-40
	(3) Coil Stop Assembly	5-40
	(4) Potentiometer R7	5-40
	(5) H-V Output Plate	5-40
	(6) Coil Limit, R6, H-V Contact	5-40
	(7) Switch S11, H-V Rotor, Plug P9	5-41
	(8) H-V Drum	5-41
	(9) Front Plate	5-43
	(10) Front Casting	5-44
	(11) Shrouds	5-44
	(12) Backlash Checks	5-44
	(13) End Play and Clearances	5-44
	(14) Reassembling and Replacing the Case and Blower Assembly	5-45
	(15) Replacing Antenna Coupler Assembly	5-46
	(16) Installation of Dry Air or Nitrogen	5-46

SECTION 6 - PARTS LIST

6-1.	Introduction	6-1
6-2.	Maintenance Parts List	6-1
6-3.	Stock Number Identification	6-1
6-4.	List of Manufacturers	6-1

LIST OF ILLUSTRATIONS

SECTION 1 - GENERAL INFORMATION

Figure		Page
1-1	Antenna Coupler Group AN/SRA-22 (C454-87-P)	1-1

SECTION 2 - INSTALLATION

2-1	Antenna Coupler CU-714/SRA-22, Outline and Mounting Dimensions (C974-06-5)	2-2
2-2	Coupler Control C-2698/SRA-22, Outline and Mounting Dimensions (C454-25-5)	2-3

SECTION 2 - INSTALLATION (Cont)

Figure		Page
2-3	Interconnecting Diagram of Antenna Coupler Group AN/SRA-22 for Use with AN/URC-32 (C454-09-4)	2-4
2-4	Installation of Type N Male Connectors on RG-8/U Cable (C64-03-3)	2-5
2-5	Installation of Type N Male Connectors on RG-10/U Cable (C64-11-3)	2-6
2-6	Terminating Cable Armor at AN Connectors (C454-81-P)	2-7
2-7	Connectors Filled with DC4 and Wrapped with Tape for Moisture Proofing (C454-82-P)	2-8
2-8	Interconnecting Diagram of Antenna Coupler Group AN/SRA-22 for Use as Separate Unit (C454-08-4)	2-9

SECTION 3 - OPERATOR'S SECTION

3-1	Antenna Coupler Group AN/SRA-22, Front Panel Control Location (C454-86-P)	3-1
3-2	Dial Set to 100 (C454-53-2)	3-3
3-3	Typical Tuning Chart (C454-19-3)	3-6

SECTION 4 - PRINCIPLES OF OPERATION

4-1	Antenna Coupler Group AN/SRA-22, Block Diagram (C454-18-3)	4-2
4-2	TAP and COIL Indicator Meter Circuits, Simplified Schematic Diagram (C454-01-4)	4-3
4-3	COIL-TAP Tuning Circuit, Simplified Schematic Diagram (C454-02-4)	4-4
4-4	Directional Coupler, Simplified Schematic Diagram (C454-89-3)	4-5
4-4A	VSWR Protector, Simplified Schematic Diagram (C454-77-3)	4-7
4-5	Capacitor Drive Circuit, Simplified Schematic Diagram (C454-04-4)	4-8
4-6	Antenna Coupler Group AN/SRA-22, Primary Power Distribution, Schematic Diagram (C454-27-5)	4-10
4-7	Relationship of SWR to Incident and Reflected Power (C189-01-1X)	4-11

SECTION 5 - MAINTENANCE

5-1	Coupler Control C-2698/SRA-22, Front Panel Removed (C454-85-P)	5-9
5-2	Coupler Control C-2698/SRA-22, Rear Panel Removed (C454-84-P)	5-10
5-3	Coupler Control C-2698/SRA-22, Directional Coupler (C454-80-P)	5-10
5-4	Coupler Control C-2698/SRA-22, VSWR Protector (C454-83-P)	5-11
5-5	Antenna Coupler CU-714/SRA-22, Exploded View (C974-09-4) (C974-10-5)	5-18
5-6	Coil Stop Arm Clearance (C454-58-3)	5-20
5-7	Coil Stop Cam Adjustments (C454-59-3)	5-20
5-8	Dial Set to 100 (C454-53-2)	5-20
5-9	Ceramic and Metal Drum Assemblies (C454-60-4)	5-21
5-10	Antenna Coupler CU-714/SRA-22, End View (C601-24-P)	5-23
5-11	Tool 121-0228-00 (C454-65-3)	5-23
5-12	Primary Gear Plate (C454-61-P)	5-24
5-13	Antenna Coupler CU-714/SRA-22, Ceramic Coil Drum (C454-64-P)	5-27
5-14	High-Voltage Switch (C454-56-3)	5-29
5-15	Antenna Coupler CU-714/SRA-22, Variable Capacitor Replacement (C601-19-P)	5-29

SECTION 5 - MAINTENANCE (Cont)

Figure		Page
5-16	Coupler Control C-2698/SRA-22, Schematic Diagram (C454-88-6)	5-47
5-17	Antenna Coupler CU-714/SRA-22, Schematic Diagram (C454-03-4)	5-48

LIST OF TABLES

SECTION 1 - GENERAL INFORMATION

Table		Page
1-1	Antenna Coupler Group AN/SRA-22	1-4
1-2	Antenna Coupler Group AN/SRA-22 Diode Complement	1-4
1-3	Antenna Coupler Group AN/SRA-22 Shipping Data	1-5

SECTION 2 - INSTALLATION

2-1	Antenna Coupler Group AN/SRA-22 Cable Requirements	2-0

SECTION 3 - OPERATOR'S SECTION

3-1	Controls/Indicators and Functions.	3-2
3-2	Routine Check Chart	3-6
3-3	Symptoms of Probable Fuse Failures.	3-7

SECTION 5 - MAINTENANCE

5-1	Antenna Coupler Group AN/SRA-22 System Trouble-Shooting Chart	5-2
5-2	Coupler Control C-2698/SRA-22 Trouble-Shooting Chart	5-4
5-3	Antenna Coupler CU-714/SRA-22 Trouble-Shooting Chart	5-8
5-4	Voltage and Resistance Measurements of Coupler Control C-2698/SRA-22	5-12
5-5	Voltage and Resistance Measurements of Antenna Coupler CU-714/SRA-22	5-14
5-6	Possible Troubles of Antenna Coupler Group AN/SRA-22	5-14

SECTION 6 - PARTS LIST

6-1	Antenna Coupler Group AN/SRA-22, Maintenance Parts List	6-2
6-2	Antenna Coupler Group AN/SRA-22, List of Manufacturers	6-31

SECTION 1

GENERAL INFORMATION

1-1. INTRODUCTION.

This technical manual contains installation and operation instructions, operating principles, and maintenance procedures for Antenna Coupler Group AN/SRA-22. The AN/SRA-22 uses techniques for resonating antenna systems and matching these systems to 50-ohm coaxial lines. The antenna coupler group is designed for surface ship operation in the frequency range of 2.0 to 30.0 megacycles. It will handle 1 kw PEP, 500 watts average power, and is designed to operate with a 35-foot whip antenna or wires longer than 35 feet. Refer to figure 1-1.

1-2. FUNCTIONAL DESCRIPTION.

Antenna Coupler Group AN/SRA-22 consists of Coupler Control C-2698/SRA-22 and Antenna Coupler CU-714/SRA-22.

a. COUPLER CONTROL C-2698/SRA-22. - This unit contains all controls and indicators for complete operation of Antenna Coupler CU-714/SRA-22. The controls and indicators are as follows.

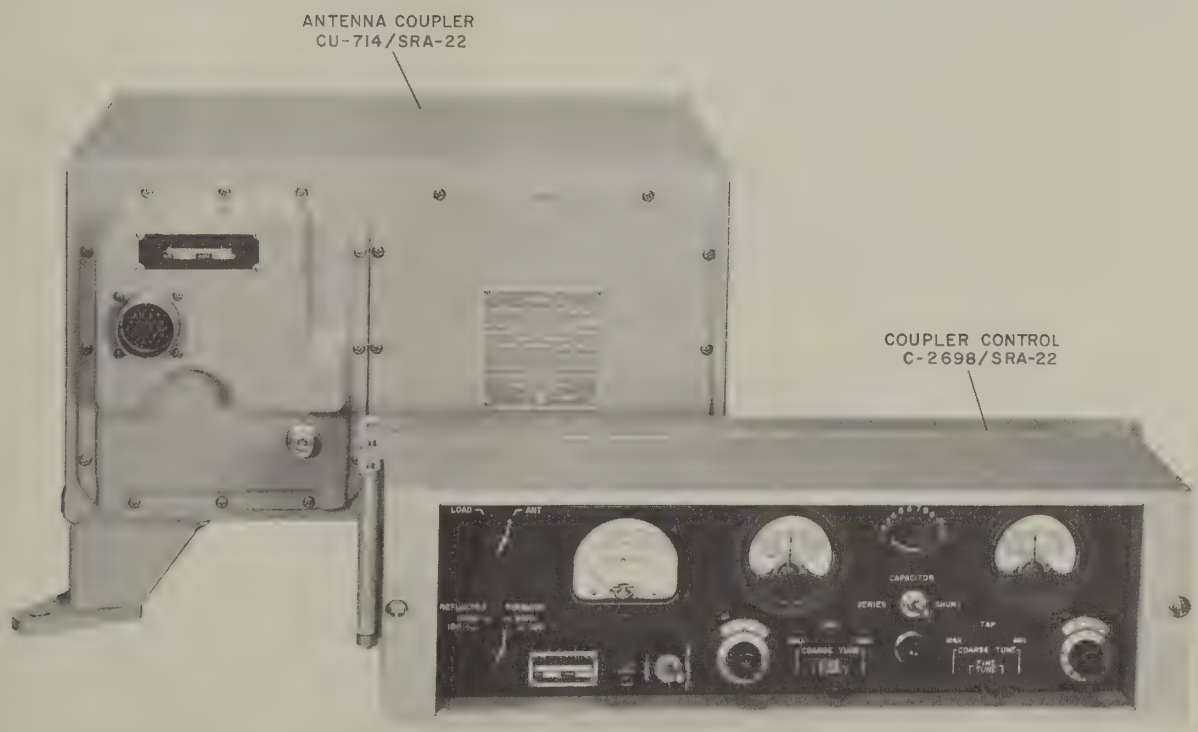


Figure 1-1. Antenna Coupler Group AN/SRA-22

(1) Tap motor drive and coil motor drive and position indicators consist of sending potentiometers in Antenna Coupler CU-714/SRA-22 and receiving potentiometers in Coupler Control C-2698/SRA-22. The sending potentiometers are connected to the tap and coil drives in such a manner that coil and tap positions are immediately determined when the respective meters are nulled.

(2) The twelve-position CAPACITOR switch drives the variable vacuum capacitor.

(3) The LOAD-ANT switch is used to connect the associated transmitter r-f power output to the antenna coupler or to a 50-ohm load.

(4) The REFLECTED-FORWARD switch selects either forward or reflected power which is read on the r-f wattmeter.

(5) The SERIES-SHUNT switch places the variable vacuum capacitor either in series or shunt with the antenna.

(6) The red indicator CAPACITOR run light lights when the variable vacuum capacitor runs and blinks when the vswr protector circuit is actuated.

(7) The TUNE-OPERATE switch interlocks Coupler Control C-2698/SRA-22 so that 115 volts, 60 cps is applied only to the coupler control in the TUNE position. Also, in the TUNE position, the AN/URC-32 output power is limited to no more than 200 watts which reduces the possibility of damage to the coupler control or transmitter.

b. ANTENNA COUPLER CU-714/SRA-22. - This unit consists of two variable elements, a variable tapped coil and a variable capacitor. The inductor of the network consists of a windup coil in which a silver ribbon is wound from a metal drum onto a ceramic drum to increase inductance and from the ceramic drum onto the metal drum to decrease inductance. Using this type of variable inductive element, it is possible to secure an extremely wide range of high Q inductance values without self-resonances.

The metal and the ceramic drums making up the windup coil are driven through a gear train from a single motor. A coil tap driven by a second motor is provided by a contact which makes a sliding connection with the ribbon on the ceramic drum. It is mounted on a ring assembly which rotates around the coil, using the ribs of the ceramic drum as a helical guide. With the two motors driving the two drums and the tap, it is possible to secure a variable inductor having a variable tap position.

A third control motor drives a variable vacuum capacitor having a range of 5 to 465 uuf. Phase control is accomplished when capacitive current from the tap through the portion of the coil above the tap to the antenna equals the inductive current through the portion of the coil from tap to ground. Proper load or resistance presented to the coaxial transmitter line is accomplished when the tap is at a position on the coil so that the resistive component of the antenna is transformed to 50 ohms. In cases where tuning can not be accomplished by operation of the coil alone, the variable vacuum capacitor is inserted either in shunt or in series with the antenna to obtain a tuning point.

With carrier power applied, the coil, tap and capacitor motor drives are adjusted to obtain minimum reflected power as indicated on the wattmeter. After a tune has been obtained, the coil and tap receiving dials on Coupler Control C-2698/SRA-22 are adjusted for a null on the respective meters. The dial readings and capacitor switch settings are then recorded for future use on the tuning chart located on the dust cover of Coupler Control C-2698/SRA-22.

1-3. FACTORY OR FIELD CHANGES.

a. Field change 1 added the TUNE-OPERATE switch.

b. Production modification A and field change 2-AN/SRA-22 added a vswr protective device. Production modification A improved the terminal board TB5 cover to Coupler Control C-2698/SRA-22 and replaced the humidity indicator with a dummy plug in Antenna Coupler CU-714/SRA-22.

c. Plug H7 was replaced with a new type (Collins Radio Company part number 553-4440-003) in production beginning with serial number 1495.

1-4. QUICK REFERENCE DATA.

R-f input impedance	50 ohms.
Number of channels	Continuous tuning.
Frequency range	2.0 to 30.0 mc.
Duty cycle	Continuous at 1 kw PEP, 500 watts average power.
R-f power input	1000 watts PEP, 500 watts average power maximum.
Matching capabilities	35-foot whip, or long wire antenna more than 35 feet in length.
Matching efficiency	Approximately $\frac{0.85 \times 250}{250 + Q_a} \times 100\%$ Q_a = antenna $\frac{x_a}{r_a}$
Maximum swr.	1.3:1.
Power requirements	115/230 volts, 50-60 cps, 1 phase, 130 watts maximum.
Ambient temperature limits	-28°C to +65°C (-18°F to +149°F).
Weight (coupler control)	17 lb.
Weight (antenna coupler)	42 lb.
Total weight (coupler control and antenna coupler).	59 lb.
Volume in cubic feet (antenna coupler)	2.4.

1-5. EQUIPMENT LIST.

a. EQUIPMENT SUPPLIED. - Equipment supplied is listed in table 1-1.

b. EQUIPMENT AND PUBLICATIONS REQUIRED BUT NOT SUPPLIED. - No additional equipment is required for proper operation of Antenna Coupler Group AN/SRA-22. Overhaul Instructions, NAVSHIPS 93286.61 (including Change 1) is available for major equipment

overhaul purposes. The Electronic Supply Office publication "Allowance Parts List" provides support information and equipment component federal stock number assignments.

TABLE 1-1. ANTENNA COUPLER GROUP AN/SRA-22

QTY PER EQUIP.	NAME	DESIGNATION	*OVER-ALL DIMENSIONS			*VOLUME	*WEIGHT
			HEIGHT	WIDTH	DEPTH		
**1	Antenna Coupler	CU-714/SRA-22	11-1/2	18-7/8	19-15/16	2.4	42
**1	Coupler Control	C-2698/SRA-22	5-1/4	19	6-7/8	0.39	17
2	Technical Manual	NAVSHIPS 93286 plus Changes 1, 2, 3					
1	Maintenance Standards Book	NAVSHIPS 93286.42(A) plus Change 1					
1	Operator's Chart	NAVSHIPS 93286.21(B)					

*Unless otherwise stated, dimensions are in inches, volume in cubic feet, weight in pounds.
**Mating connectors are supplied with the antenna coupler and coupler control units.

c. DIODE COMPLEMENT. - Antenna Coupler Group AN/SRA-22 uses no tubes, however, six diodes are used in Coupler Control C-2698/SRA-22. Diodes used are listed in table 1-2.

TABLE 1-2. ANTENNA COUPLER GROUP AN/SRA-22 DIODE COMPLEMENT

UNIT	NUMBER OF DIODES, TYPES INDICATED							
	1N108	1N536	1N82A	1N647	1N457	1N963B	2N886	TOTAL
Coupler Control C-2698/SRA-22	2	4						6
Directional Coupler (subassembly A1 of coupler control)			2					2
VSWR Protector (subassembly A2 of coupler control)				1	1	1	1	4
	2	4	2	1	1	1	1	12

d. SHIPPING DATA. - Shipping data is listed in table 1-3.

TABLE 1-3. ANTENNA COUPLER GROUP AN/SRA-22 SHIPPING DATA

BOX NO.	NOMENCLATURE		*OVER-ALL DIMENSIONS			*VOLUME	*WEIGHT
	NAME	DESIGNATION	HEIGHT	WIDTH	DEPTH		
1	**Coupler Control	C-2698/SRA-22	22	8	10	1.2	25
2	**Antenna Coupler	CU-714/SRA-22	20	14-1/2	20	3.4	53
	Technical Manual	NAVSHIPS 93286 plus Change 1, 2, 3					
	Maintenance Standards Book	NAVSHIPS 93286.42(A) plus Change 1					
	Operator's Chart	NAVSHIPS 93286.21(B)					

*Unless otherwise stated, dimensions are in inches, volume in cubic feet, and weight in pounds; equipment coated and ready for shipment.
**Mating connectors are supplied with the antenna coupler and coupler control units.

SECTION 2

INSTALLATION

2-1. UNPACKING AND HANDLING.

Carefully unpack Antenna Coupler CU-714/SRA-22 and Coupler Control C-2698/SRA-22, and inspect for evidence of shipping damage. If damage is evident, notify the transportation agency immediately. Packing material must be retained to substantiate damage claims.

2-2. INSTALLATION REQUIREMENTS.

a. INSTALLATION POINTERS. - Coupler Control C-2698/SRA-22 is designed for rack mounting. When using the coupler control with Radio Set AN/URC-32, remove the blank panel, which is below interconnection box J-1007/U, and mount the coupler control in this space. Antenna Coupler CU-714/SRA-22 is sealed and uses waterproof connectors. The antenna coupler shall be mounted adjacent to the base of the antenna. A distance of 19 inches minimum should be left for removing the antenna coupler from its case. It is important to have a good ground to the ship or the ship grounding system.

b. OUTLINE DRAWING. - Figure 2-1 shows outline and mounting installation dimensions for the antenna coupler, and figure 2-2 shows outline and installation dimensions for the coupler control.

c. INTERCONNECTING DIAGRAMS. - Figure 2-3 shows an interconnecting diagram of Antenna Coupler Group AN/SRA-22 for use with Radio Set AN/URC-32. Figure 2-8 shows an interconnection diagram of the antenna coupler group for use as a separate unit with other transmitters. Cable requirements are given in table 2-1.

TABLE 2-1. ANTENNA COUPLER GROUP AN/SRA-22 CABLE REQUIREMENTS

NO. OF CABLES	TYPE OF CABLE	TERMINATION AT ANTENNA COUPLER	TERMINATION AT COUPLER CONTROL	TERMINATION AT DUMMY LOAD
1	MSCA-24	24-contact round male MS3106E24-28S(c)	To terminal strip TB5	
1	RG-8/U or RG-10/U	Series N plug, straight UG-21E/U	Series N plug, right angle UG-594/U	
1	RG-8/U or RG-10/U		Series N plug, right angle UG-594/U	Series N plug, straight UG-21E/U
1	RG-8/U or RG-10/U		Series N plug, right angle (from transmitter) UG-594/U	
1	RG-58/U		Series BNC plug (from receiver input) UG-88C/U	
1	No. 22 AWG multiconductor interconnection cable (from AN/URC-32)		16 contact male plug (from AN/URC-32) Amphenol 26-4502-16F	

TABLE 2-1. ANTENNA COUPLER GROUP AN/SRA-22 CABLE REQUIREMENTS (Cont)

NO. OF CABLES	TYPE OF CABLE	TERMINATION AT ANTENNA COUPLER	TERMINATION AT COUPLER CONTROL	TERMINATION AT DUMMY LOAD
1	No. 22 AWG multi-conductor interconnection cable (from TB5)		24-contact female plug (from TB5) Amphenol 26-4501-24S	

NOTE

Determine cable lengths for any specific installation.

d. CABLE ASSEMBLY. - Install type N connectors on the RG-8/U and/or RG-10/U type cables as shown in figures 2-4 and 2-5. Install 16-pin plug P6 on one end of a multiconductor cable when Antenna Coupler Group AN/SRA-22 is used with equipment other than Radio Set AN/URC-32. Cut cable to the required length for specific installation. Install 24-pin plug P5 on one end of cable, and terminate other end of cable to terminal board TB5. Install a 24-pin round plug, P7, on another cable, and terminate the other end of this cable to terminal board TB5. Refer to figures 2-6 and 2-7 for instructions.

2-3. INSPECTION AND ADJUSTMENTS.

NOTE

To operate controls of Coupler Control C-2698/SRA-22, it is necessary to hold the TUNE-OPERATE switch in the TUNE position.

a. Check the grounding of the antenna coupler case to the ship or ship grounding system. It is most important to have a good ground for the antenna coupler. Remove paint from bottom of feet prior to mounting.

b. Set TAP COARSE TUNE-FINE TUNE on coupler control to COARSE TUNE, and note if TAP indicator meter changes reading.

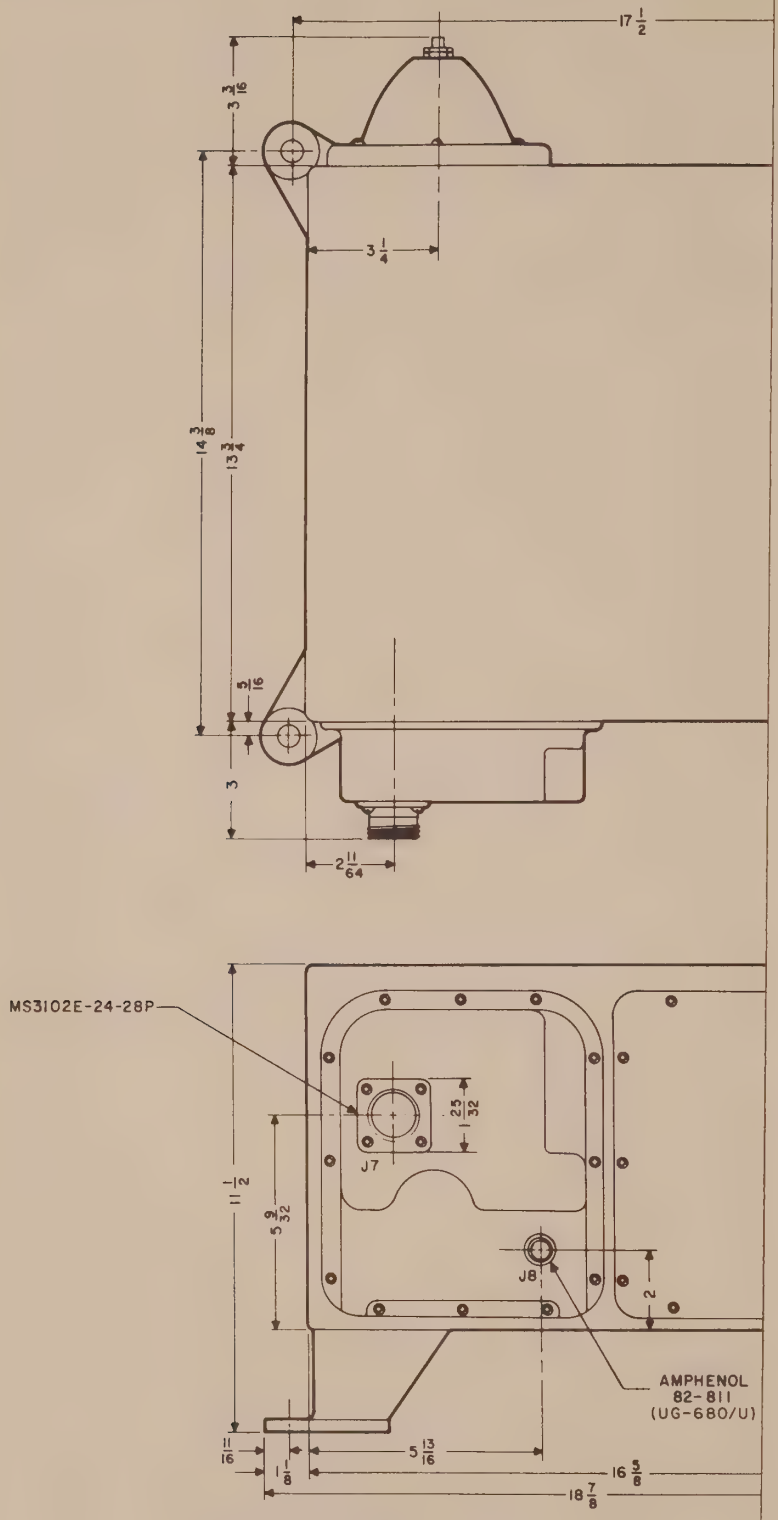
c. Set COIL COARSE TUNE-FINE TUNE on coupler control to COARSE TUNE, and note if COIL indicator meter changes reading.

d. Set LOAD-ANT switch on coupler control to LOAD position. (Make sure a dummy load is connected to the coupler control.) Refer to paragraph 3-2b, and proceed as outlined.

2-4. PREPARATION FOR RESHIPMENT.

No disassembly of Antenna Coupler CU-714/SRA-22 and Coupler Control C-2698/SRA-22 is necessary for reshipment. Coupler Control C-2698/SRA-22 should be wrapped in neutral paper and put into a carton padded with corrugated padding along with five 1-pound bags (16-unit bag) of desiccant. This control should be wrapped with a vapor-proof barrier and put into a final carton that measures 22 by 8 by 10 inches.

Antenna Coupler CU-714/SRA-22 should be wrapped in neutral paper and put into a carton padded with corrugated padding along with three 1-pound bags of desiccant. This carton should be wrapped with a vapor-proof barrier and put into a final carton that measures 20 by 14-1/2 by 20 inches.



NOTES:
1. ALL DIMENSIONS ARE GIVEN IN INCHES.
2. POWER REQUIREMENTS: 115/230± 10% SINGLE PHAS
3. AMBIENT TEMPERATURE RANGE -28° TO +65° CENTI
4. HEAT DISSIPATION: 270 WATTS MAXIMUM (CONTINUO

Figure 2-1. Antenna Coupler CU-714/SRA-22, Outline and Mounting Dimensions

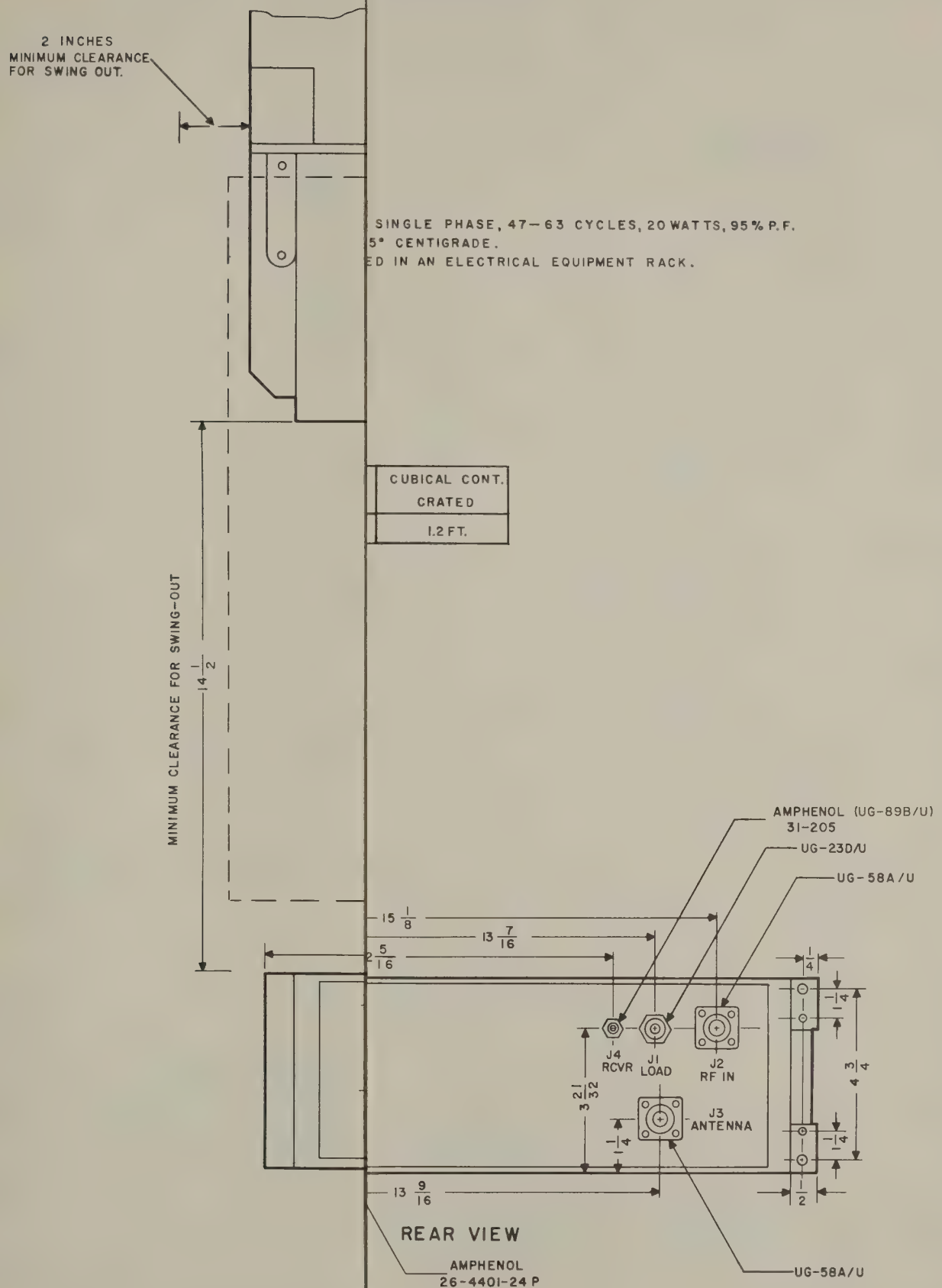
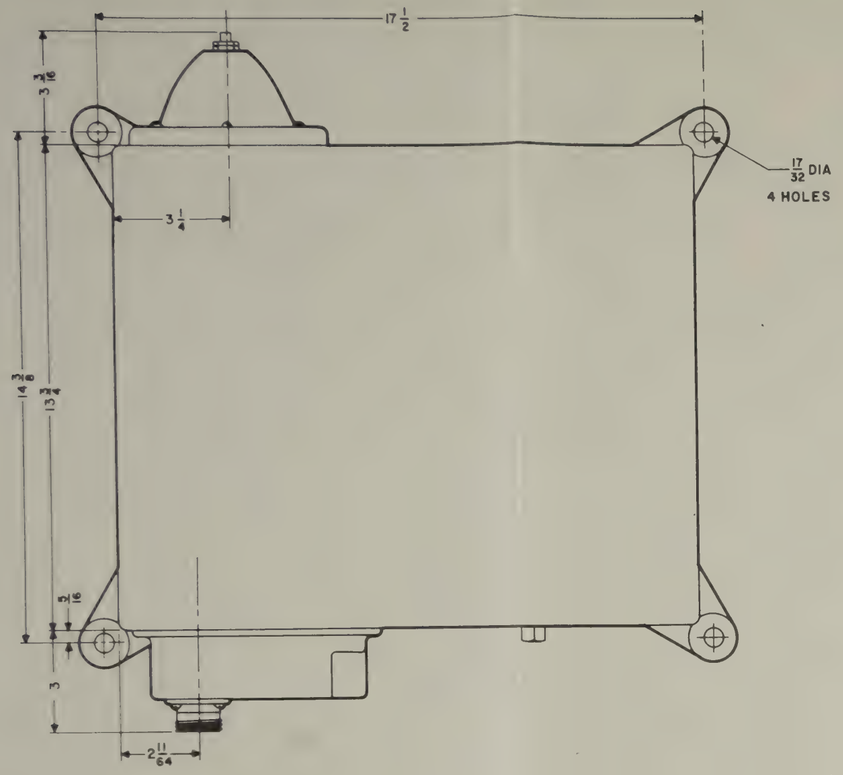
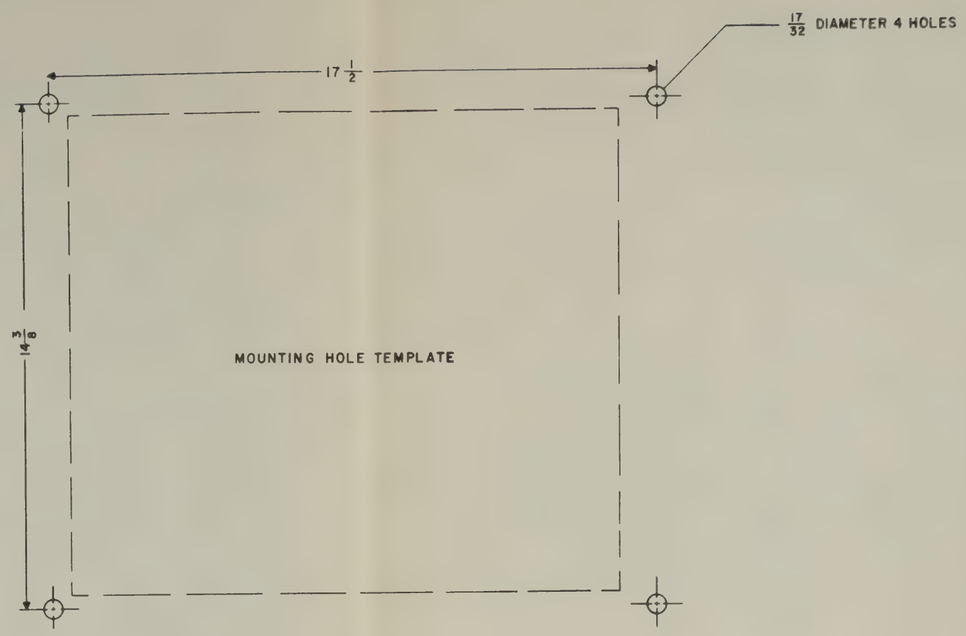
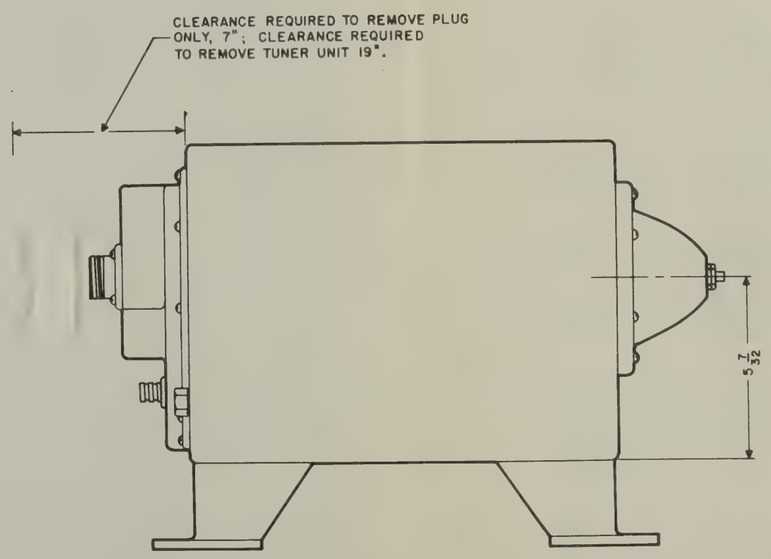
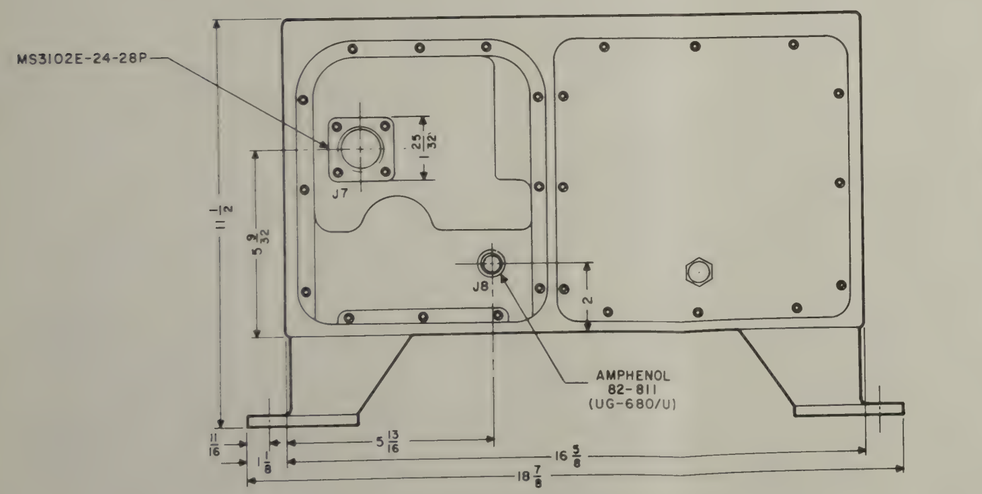


Figure 2-2. Coupler Control C-2698/ SRA-22, Outline and Mounting Dimensions





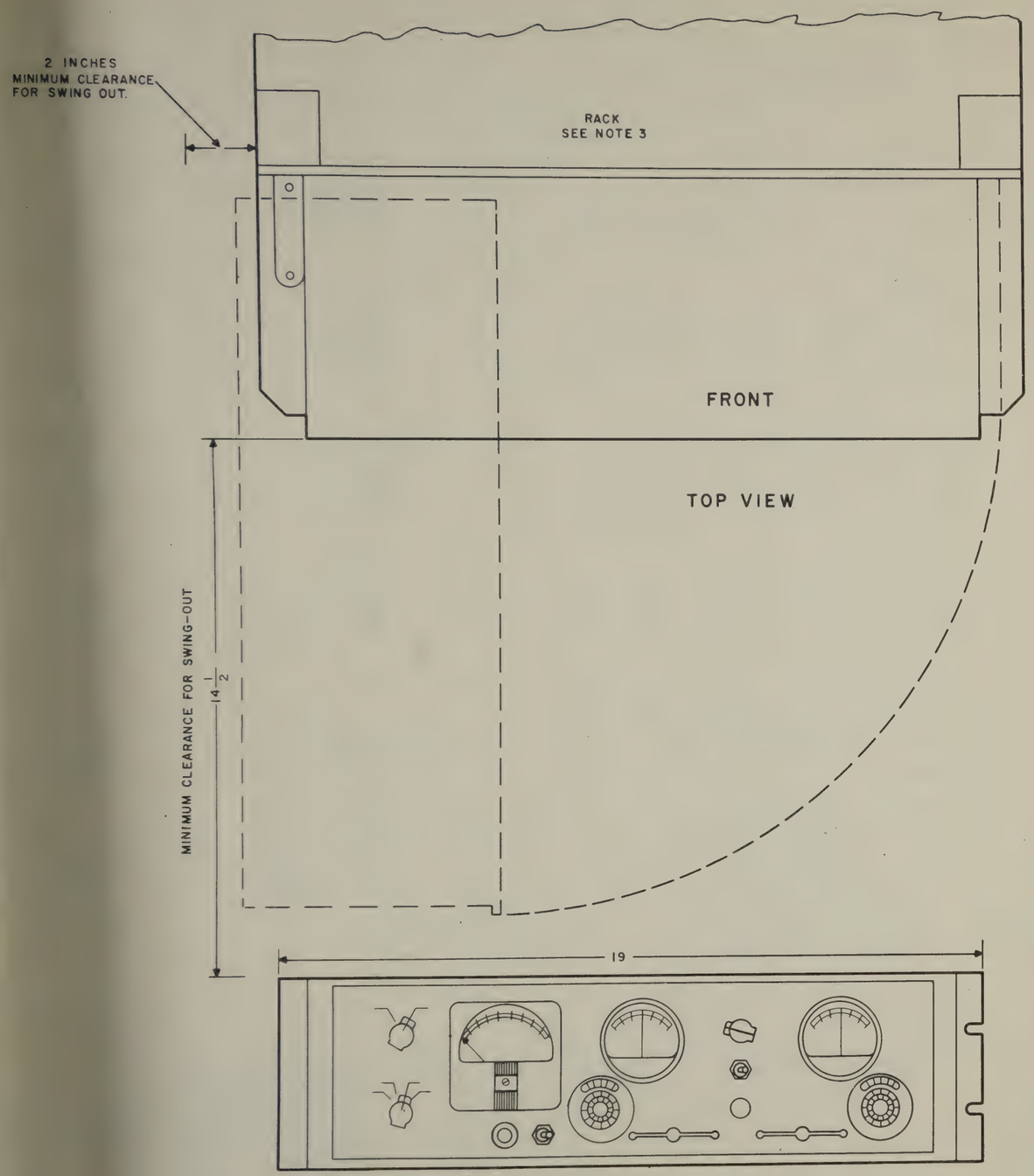




NOTES:
1. ALL DIMENSIONS ARE GIVEN IN INCHES.
2. POWER REQUIREMENTS: 115/230± 10% SINGLE PHASE, 47-63CPS, 130 WATTS, 95% P.F.
3. AMBIENT TEMPERATURE RANGE -28° TO +65° CENTIGRADE.
4. HEAT DISSIPATION: 270 WATTS MAXIMUM (CONTINUOUS OPERATION).

WEIGHT UNCRATED	WEIGHT CRATED	OVERALL DIMENSIONS CRATED	CUBICAL CONTENTS CRATED
42 LB	53 LB	20"X 14 1/2" X 20"	3.4 CU. FT.

Figure 2-1. Antenna Coupler CU-714/SRA-22, Outline and Mounting Dimensions



NOTES:
1. POWER REQUIREMENTS: 115/230 VOLTS±10% SINGLE PHASE, 47–63 CYCLES, 20 WATTS, 95% P.F.
2. AMBIENT TEMPERATURE RANGE –28° TO +65° CENTIGRADE.
3. THIS EQUIPMENT IS DESIGNED TO BE MOUNTED IN AN ELECTRICAL EQUIPMENT RACK.
4. ALL DIMENSIONS GIVEN IN INCHES.

WEIGHT UNCRATED	WEIGHT CRATED	OVERALL DIM. CRATED	CUBICAL CONT. CRATED
17LB.	25LB.	22"X8"X10"	1.2FT.

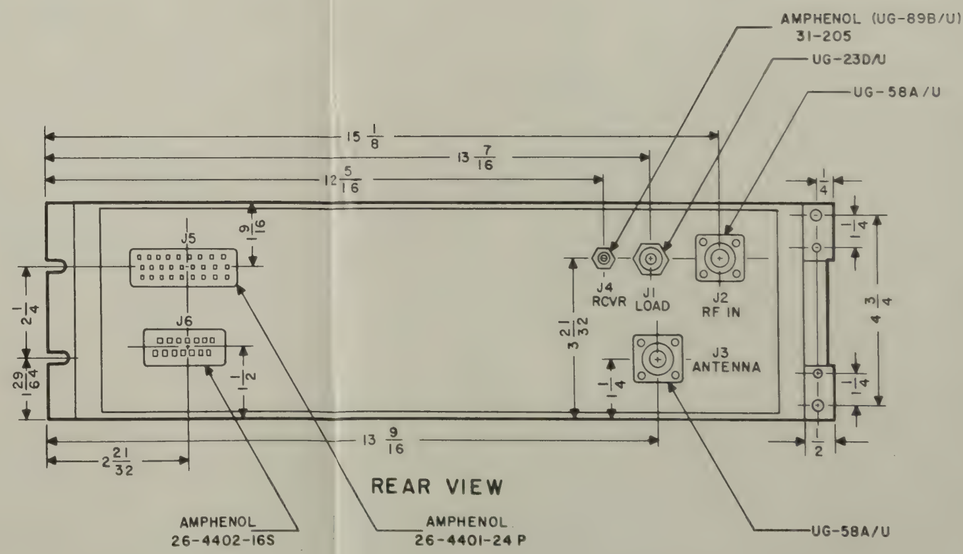
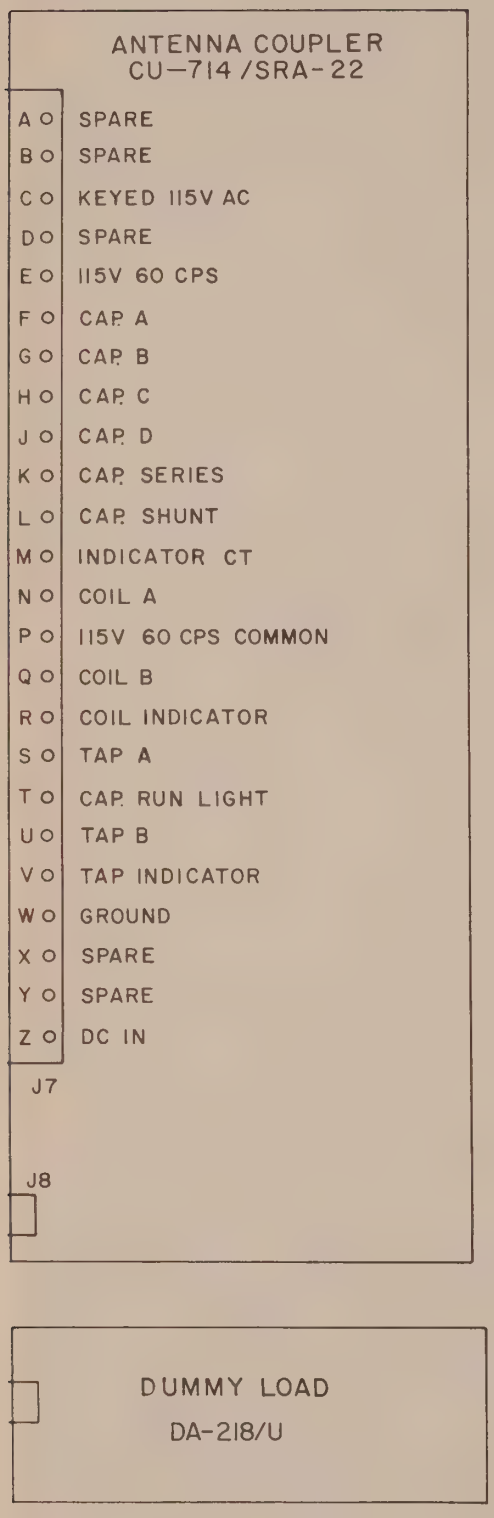
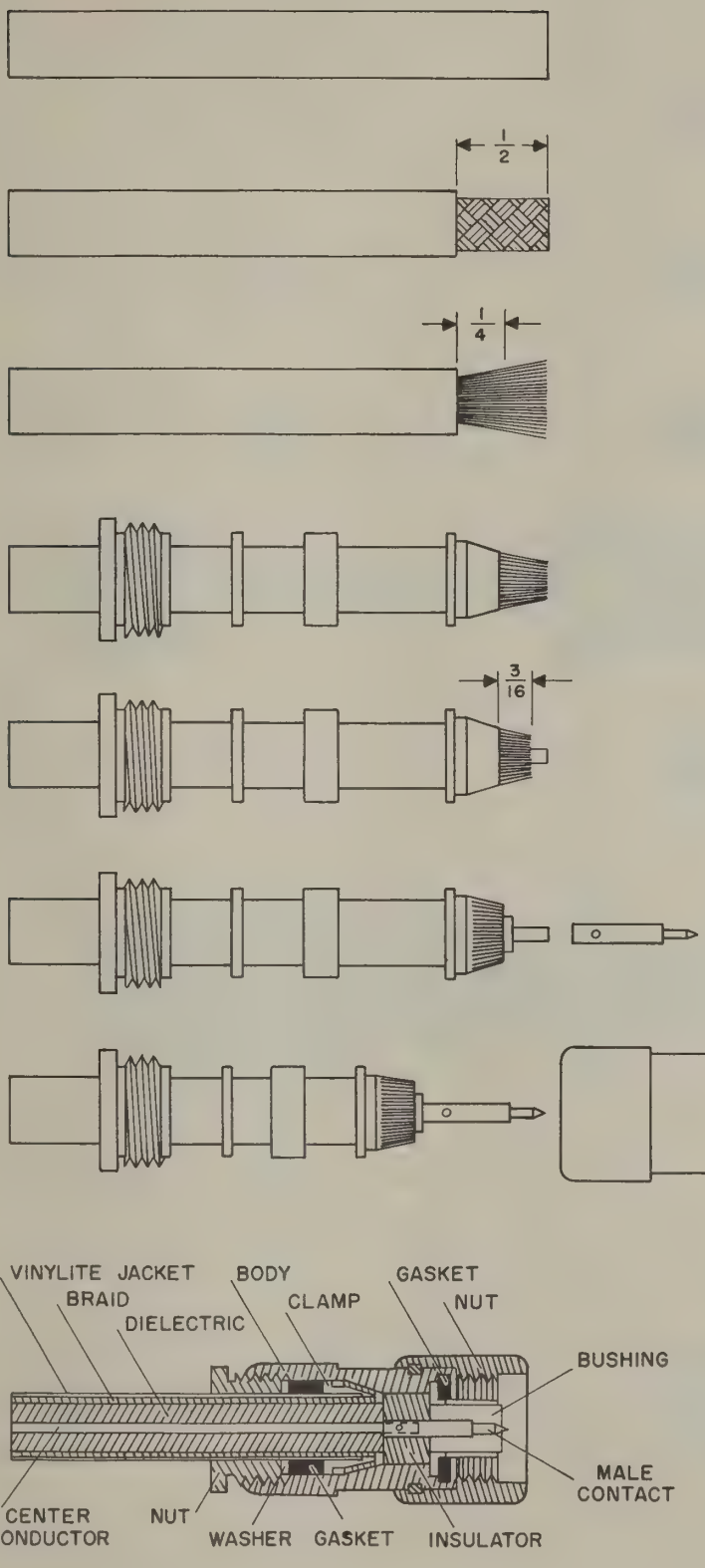


Figure 2-2. Coupler Control C-2698/SRA-22, Outline and Mounting Dimensions


ANTENNA COUPLER
CU-714/SRA-22
A O SPARE
B O SPARE
C O KEYED 115V AC
D O SPARE
E O 115V 60 CPS
F O CAP. A
G O CAP. B
H O CAP. C
J O CAP. D
K O CAP. SERIES
L O CAP. SHUNT
M O INDICATOR CT
N O COIL A
P O 115V 60 CPS COMMON
Q O COIL B
R O COIL INDICATOR
S O TAP A
T O CAP. RUN LIGHT
U O TAP B
V O TAP INDICATOR
W O GROUND
X O SPARE
Y O SPARE
Z O DC IN
J7
J8

DUMMY LOAD
DA-218/U



CUT END OF CABLE EVEN.

REMOVE VINYL JACKET $\frac{1}{2}$ INCH — DON'T NICK BRAID.

COMB OUT COPPER BRAID AS SHOWN. BARE $\frac{1}{4}$ INCH OF CENTER CONDUCTOR — DON'T NICK CONDUCTOR.

TAPER BRAID AS SHOWN. SLIDE NUT, WASHER AND GASKET ON VINYL JACKET. SLIDE CLAMP ON BRAID.

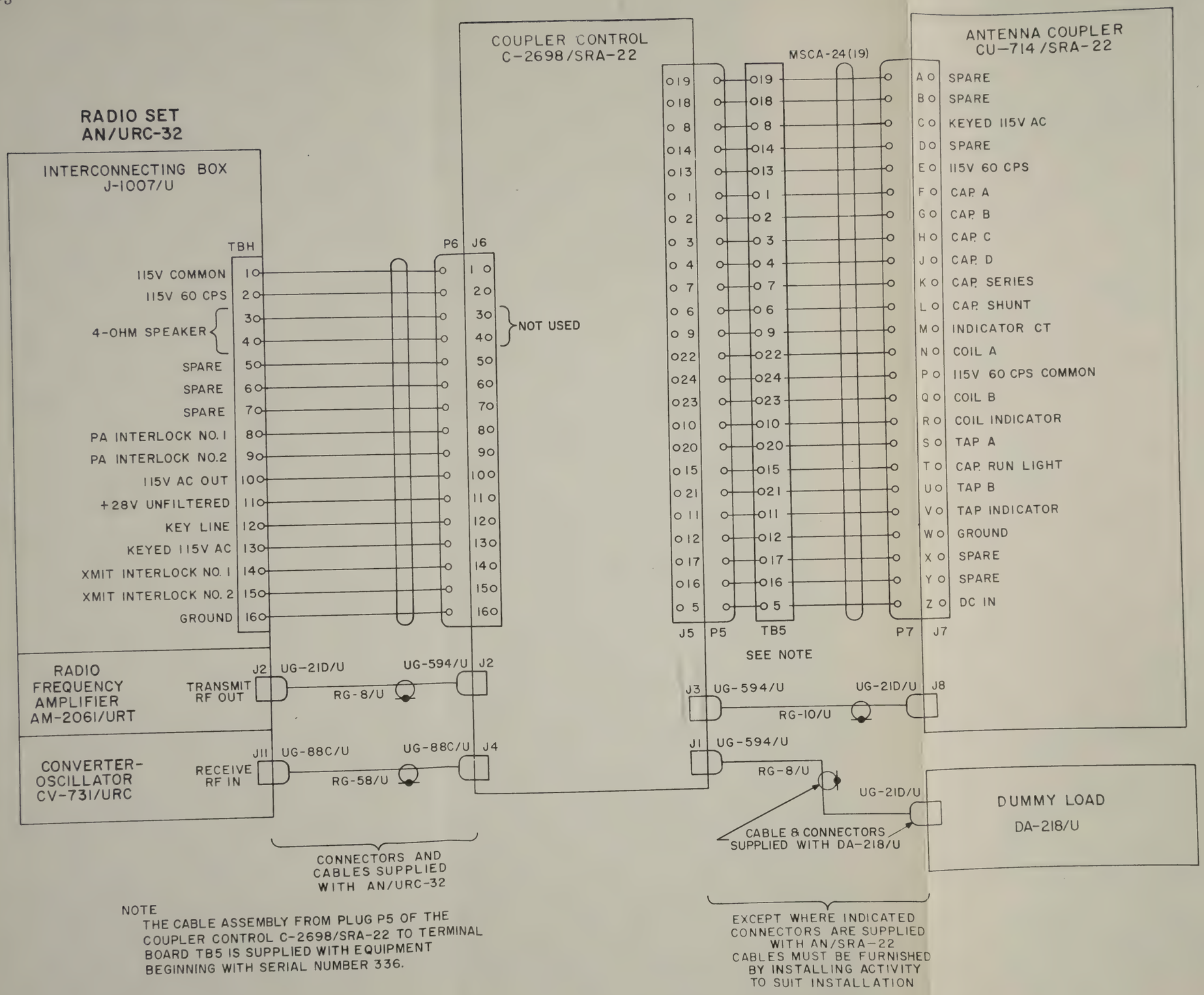
WITH CLAMP IN PLACE, TRIM BRAID AS SHOWN.

FOLD COPPER BRAID BACK ON CLAMP. TIN CENTER CONDUCTOR, USING MINIMUM AMOUNT OF HEAT.

HOLDING CONTACT WITH PLIERS, SOFT SOLDER CONTACT TO CENTER CONDUCTOR. IT IS IMPERATIVE THAT BACK END OF CONTACT BE FLUSH WITH POLYETHYLENE DIELECTRIC. DO NOT USE EXCESS SOLDER. WIPE CLEAN — SEE THAT END OF CABLE INSULATOR IS CLEAN AND FREE OF SOLDER, ROSIN AND FOREIGN MATERIAL.

SLIDE BODY INTO PLACE CAREFULLY SO THAT CENTER CONDUCTOR ENTERS HOLE IN INSULATOR. FACE OF CABLE DIELECTRIC MUST FIT FLUSH AGAINST INSULATOR. PROPERLY TIGHTEN BODY AND NUT WITH WRENCHES.

Figure 2-4. Installation of Type N Male Connectors on RG-8/U Cable


RADIO SET AN/URC-32
INTERCONNECTING BOX J-1007/U
TBH
115V COMMON 1
115V 60 CPS 2
4-OHM SPEAKER 3 4
SPARE 5
SPARE 6
SPARE 7
PA INTERLOCK NO. 1 8
PA INTERLOCK NO. 2 9
115V AC OUT 10
+28V UNFILTERED 11
KEY LINE 12
KEYED 115V AC 13
XMIT INTERLOCK NO. 1 14
XMIT INTERLOCK NO. 2 15
GROUND 16
COUPLER CONTROL C-2698/SRA-22
P6 J6
1 2 3 4 NOT USED 5 6 7 8 9 10 11 12 13 14 15 16
MSCA-24(19)
19 18 8 14 13 1 2 3 4 7 6 9 22 24 23 10 20 15 21 11 12 17 16 5
J5 P5 TB5 P7 J7
ANTENNA COUPLER CU-714/SRA-22
A O SPARE
B O SPARE
C O KEYED 115V AC
D O SPARE
E O 115V 60 CPS
F O CAP. A
G O CAP. B
H O CAP. C
J O CAP. D
K O CAP. SERIES
L O CAP. SHUNT
M O INDICATOR CT
N O COIL A
P O 115V 60 CPS COMMON
Q O COIL B
R O COIL INDICATOR
S O TAP A
T O CAP. RUN LIGHT
U O TAP B
V O TAP INDICATOR
W O GROUND
X O SPARE
Y O SPARE
Z O DC IN
SEE NOTE
RADIO FREQUENCY AMPLIFIER AM-2061/URT
TRANSMIT RF OUT
J2 UG-21D/U RG-8/U UG-594/U J2
J3 UG-594/U RG-10/U UG-21D/U J8
CONVERTER-OSCILLATOR CV-731/URC
RECEIVE RF IN
J11 UG-88C/U RG-58/U UG-88C/U J4
J1 UG-594/U RG-8/U UG-21D/U
DUMMY LOAD DA-218/U
CABLE & CONNECTORS SUPPLIED WITH DA-218/U
CONNECTORS AND CABLES SUPPLIED WITH AN/URC-32
EXCEPT WHERE INDICATED CONNECTORS ARE SUPPLIED WITH AN/SRA-22 CABLES MUST BE FURNISHED BY INSTALLING ACTIVITY TO SUIT INSTALLATION

NOTE
THE CABLE ASSEMBLY FROM PLUG P5 OF THE COUPLER CONTROL C-2698/SRA-22 TO TERMINAL BOARD TB5 IS SUPPLIED WITH EQUIPMENT BEGINNING WITH SERIAL NUMBER 336.

Figure 2-3. Interconnecting Diagram of Antenna Coupler Group AN/SRA-22 for Use with AN/URC-32

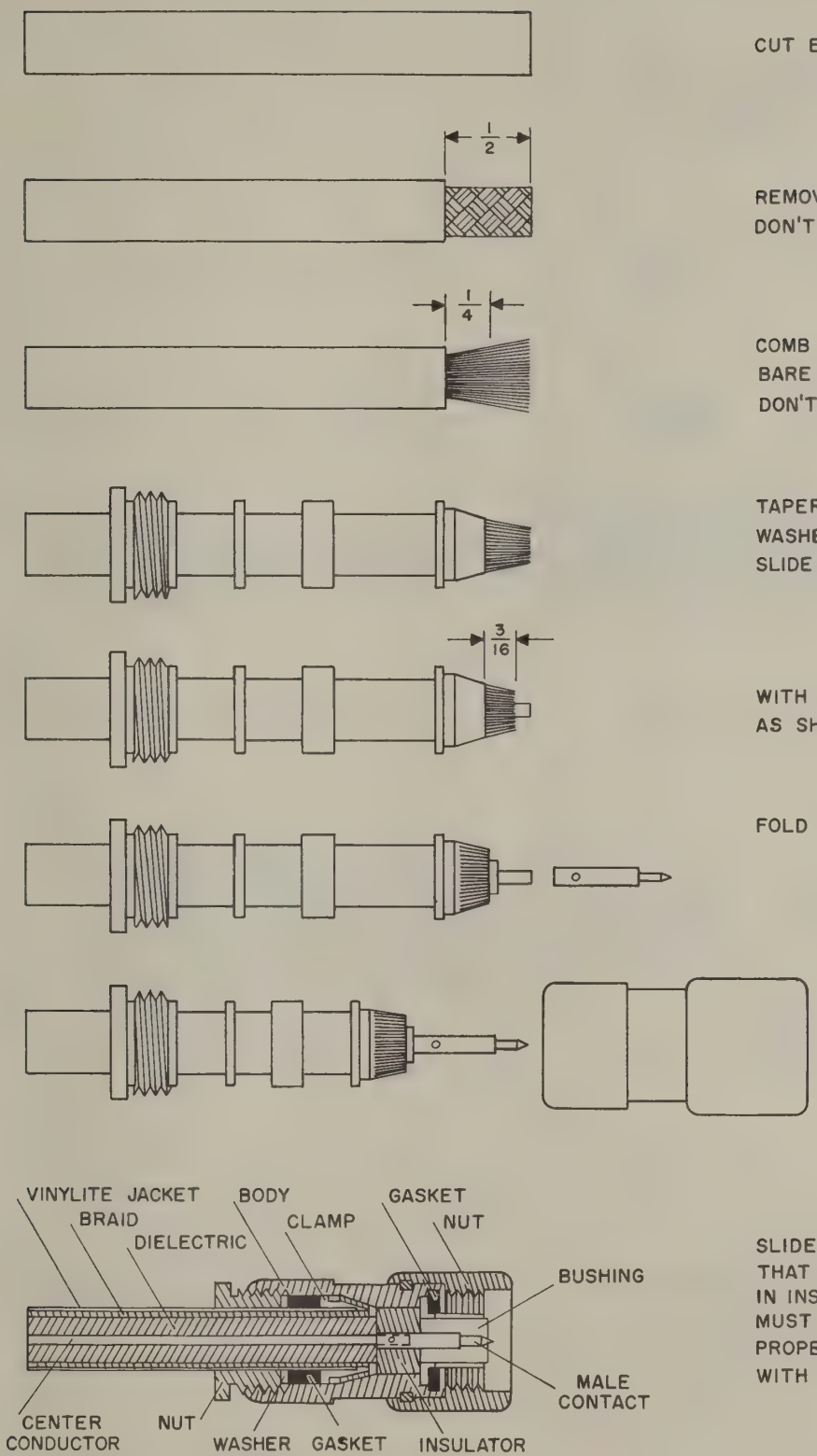
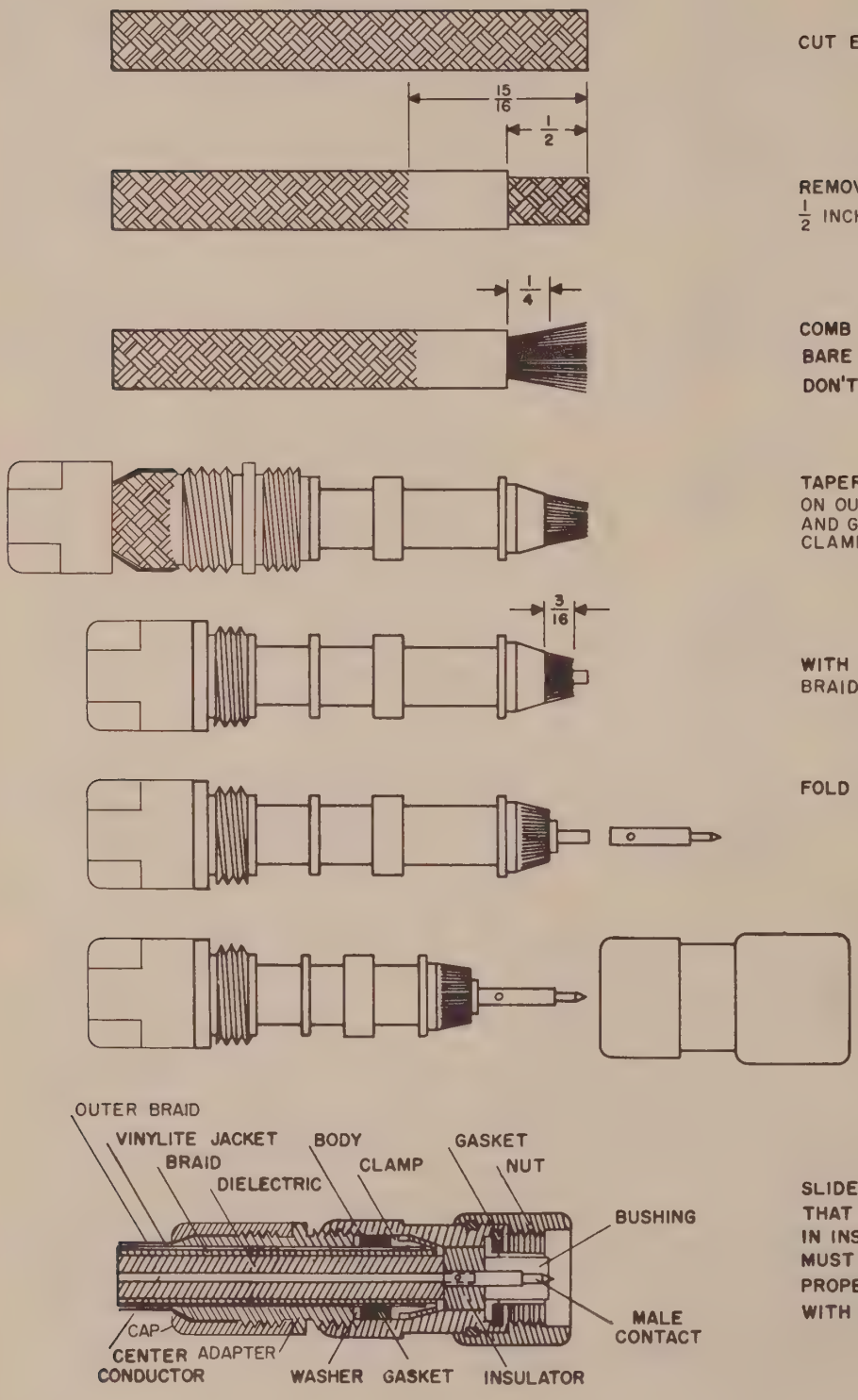

CUT END OF CABLE EVEN.
1/2
REMOVE VINYL JACKET 1/2 INCH — DON'T NICK BRAID.
1/4
COMB OUT COPPER BRAID AS SHOWN. BARE 1/4 INCH OF CENTER CONDUCTOR — DON'T NICK CONDUCTOR.
TAPER BRAID AS SHOWN. SLIDE NUT, WASHER AND GASKET ON VINYL JACKET. SLIDE CLAMP ON BRAID.
3/16
WITH CLAMP IN PLACE, TRIM BRAID AS SHOWN.
FOLD COPPER BRAID BACK ON CLAMP. TIN CENTER CONDUCTOR, USING MINIMUM AMOUNT OF HEAT.
HOLDING CONTACT WITH PLIERS, SOFT SOLDER CONTACT TO CENTER CONDUCTOR. IT IS IMPERATIVE THAT BACK END OF CONTACT BE FLUSH WITH POLYETHYLENE DIELECTRIC. DO NOT USE EXCESS SOLDER. WIPE CLEAN — SEE THAT END OF CABLE INSULATOR IS CLEAN AND FREE OF SOLDER, ROSIN AND FOREIGN MATERIAL.
VINYLITE JACKET
BRAID
DIELECTRIC
BODY
CLAMP
GASKET
NUT
BUSHING
MALE CONTACT
CENTER CONDUCTOR
NUT
WASHER
GASKET
INSULATOR
SLIDE BODY INTO PLACE CAREFULLY SO THAT CENTER CONDUCTOR ENTERS HOLE IN INSULATOR. FACE OF CABLE DIELECTRIC MUST FIT FLUSH AGAINST INSULATOR. PROPERLY TIGHTEN BODY AND NUT WITH WRENCHES.

Figure 2-4. Installation of Type N Male Connectors on RG-8/U Cable



CUT END OF CABLE EVEN.

REMOVE OUTER BRAID $\frac{15}{16}$ AND VINYL JACKET $\frac{1}{2}$ INCH, DON'T NICK INNER BRAID.

COMB OUT INNER BRAID AS SHOWN. BARE $\frac{1}{4}$ INCH OF CENTER CONDUCTOR – DON'T NICK CONDUCTOR.

TAPER BRAID AS SHOWN. SLIDE CAP ON OUTER BRAID AND ADAPTER, WASHER AND GASKET ON VINYL JACKET. SLIDE CLAMP ON INNER BRAID.

WITH CLAMP IN PLACE, TRIM INNER BRAID AS SHOWN.

FOLD INNER BRAID BACK ON CLAMP. TIN CENTER CONDUCTOR, USING MINIMUM AMOUNT OF HEAT.

HOLDING CONTACT WITH PLIERS, SOFT SOLDER CONTACT TO CENTER CONDUCTOR. IT IS IMPERATIVE THAT BACK END OF CONTACT BE FLUSH WITH POLYETHYLENE DIELECTRIC. DO NOT USE EXCESS SOLDER. WIPE CLEAN – SEE THAT END OF CABLE INSULATOR IS CLEAN AND FREE OF SOLDER, ROSIN AND FOREIGN MATERIAL.

SLIDE BODY INTO PLACE CAREFULLY SO THAT CENTER CONDUCTOR ENTERS HOLE IN INSULATOR. FACE OF CABLE DIELECTRIC MUST FIT FLUSH AGAINST INSULATOR. PROPERLY TIGHTEN BODY AND NUT WITH WRENCHES.

Figure 2-5. Installation of Type N Male Connectors on RG-10/U Cable

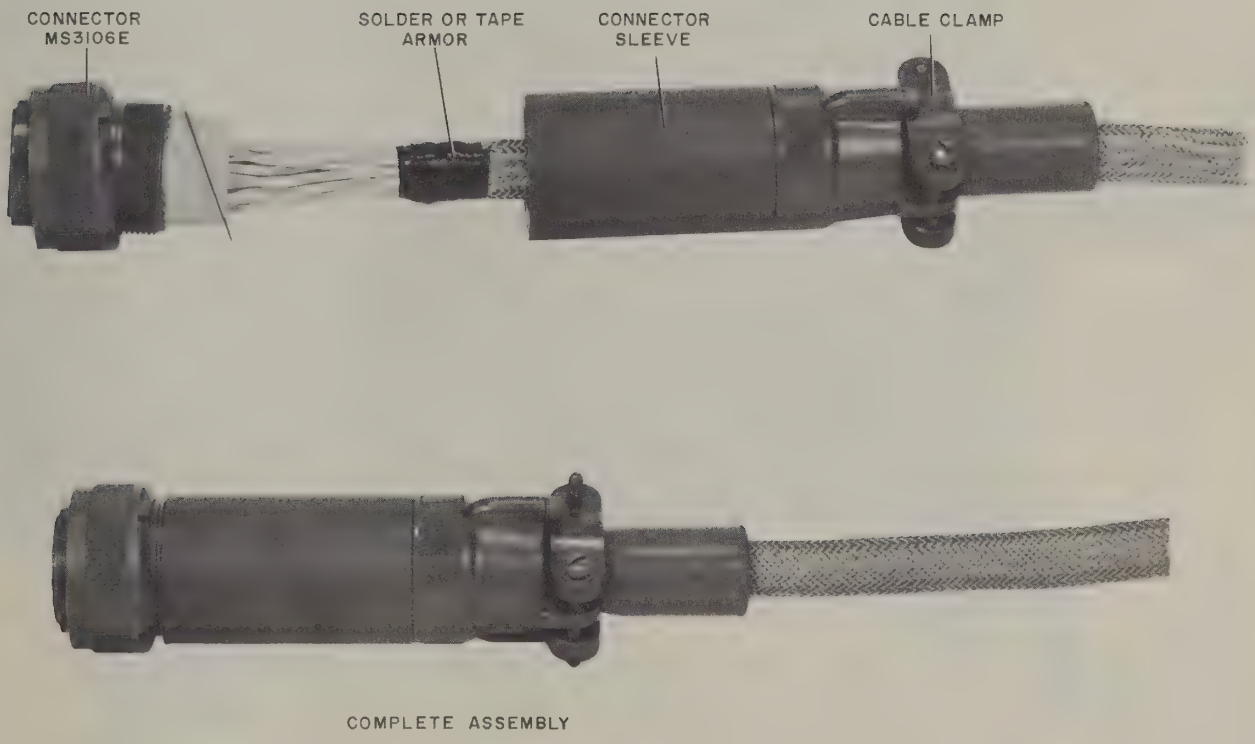


Figure 2-6. Terminating Cable Armor at AN Connectors

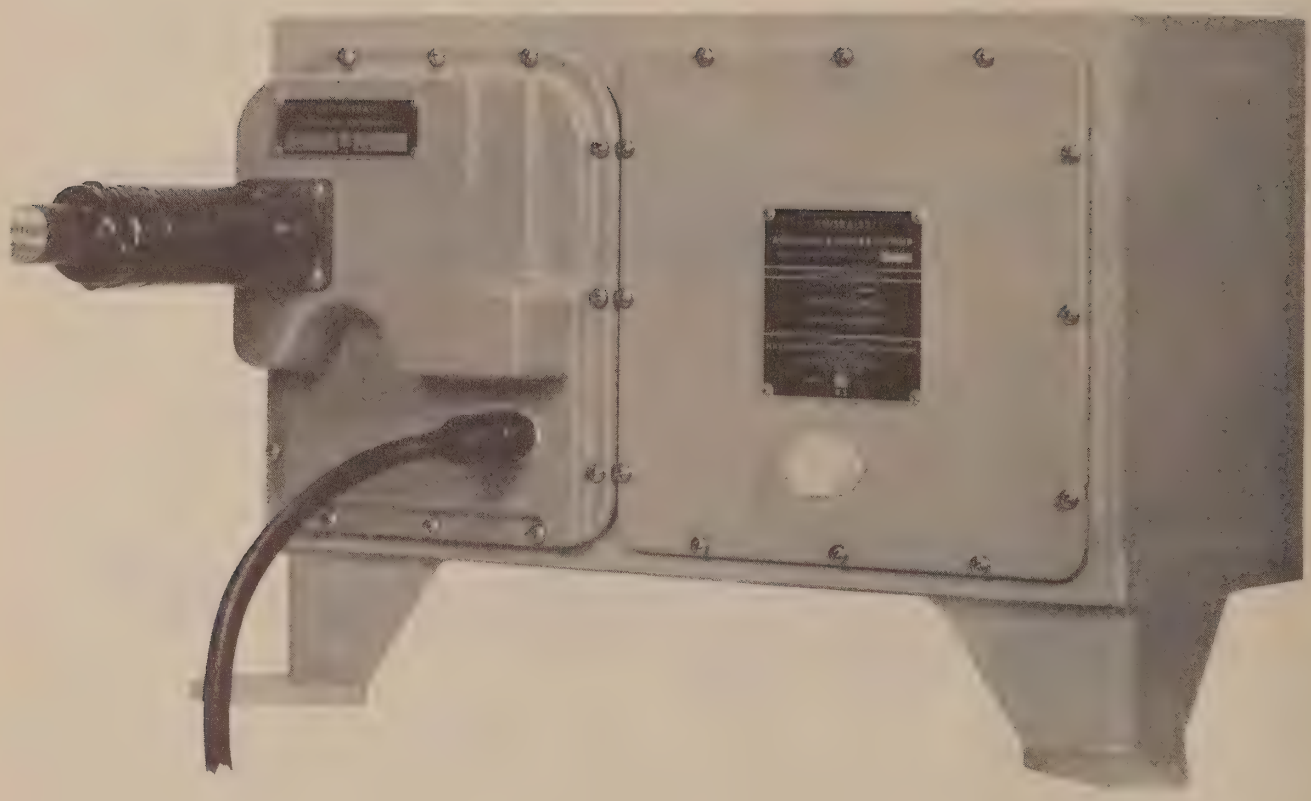


Figure 2-7. Connectors Filled with DC4 and Wrapped with Tape for Moisture Proofing

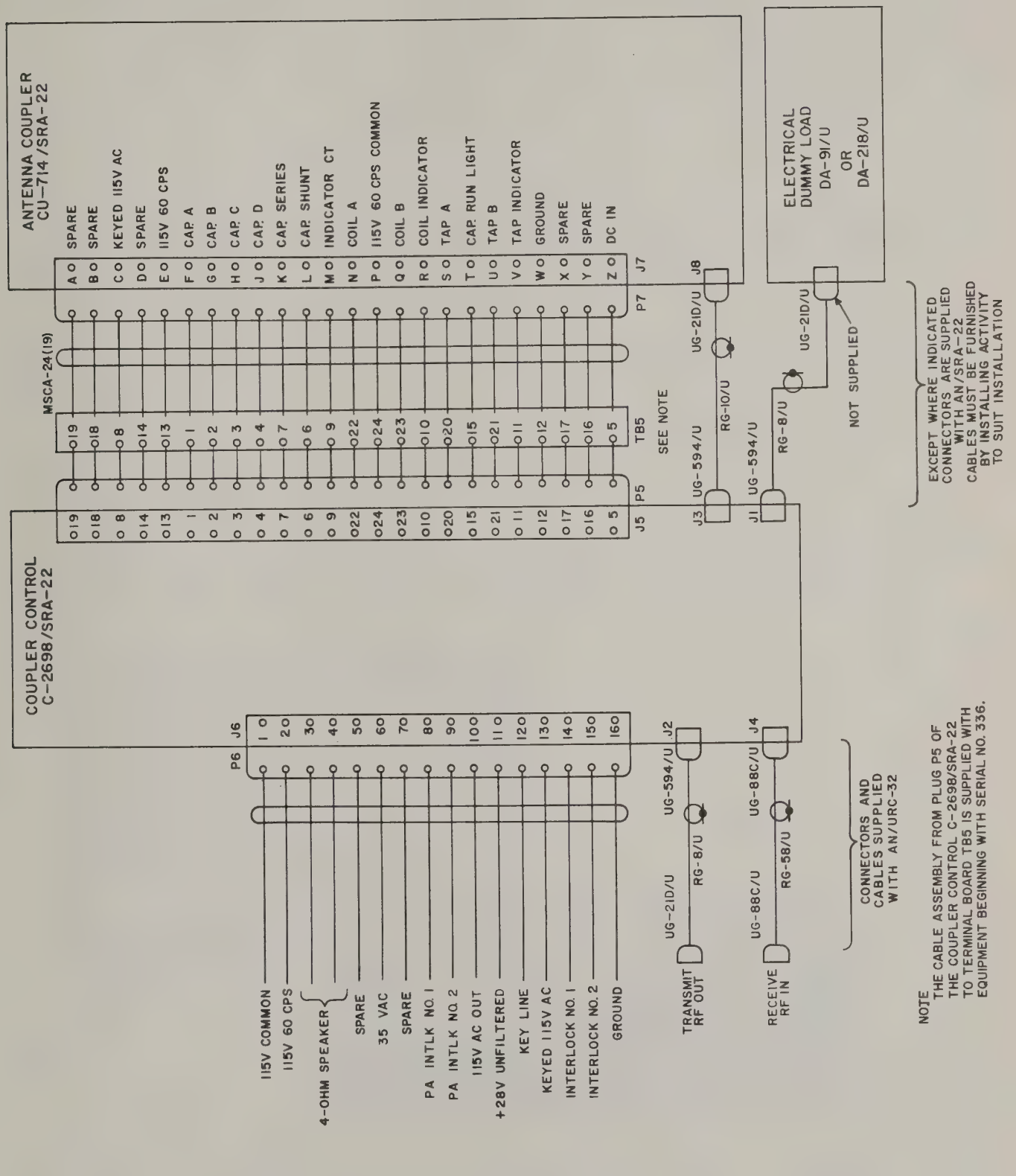


Figure 2-8. Interconnecting Diagram of Antenna Coupler Group AN/SRA-22 for Use as Separate Unit

SECTION 3

OPERATOR'S SECTION

3-1. FUNCTIONAL OPERATION.

Antenna Coupler Group AN/SRA-22 will satisfy the tuning requirements of 35-foot whips and long wire antennas normally encountered in shipboard applications. Antenna Coupler Group AN/SRA-22 consists of Antenna Coupler CU-714/SRA-22 and Coupler Control C-2698/SRA-22 and normally is used with Radio Set AN/URC-32.

a. The antenna coupler contains the variable elements to tune the antenna to resonance. It is of weatherized construction, sealed to withstand the environmental conditions that are found on naval vessels.

b. Coupler Control C-2698/SRA-22 contains all controls and indicators for complete operation of the antenna coupler from a transmitter.

3-2. OPERATING PROCEDURES.

a. DESCRIPTION OF CONTROLS. - Coupler Control C-2698/SRA-22 contains all controls and indicators for complete operation of Antenna Coupler CU-714/SRA-22. Table 3-1 describes the operating controls and indicators and figure 3-1 identifies them.

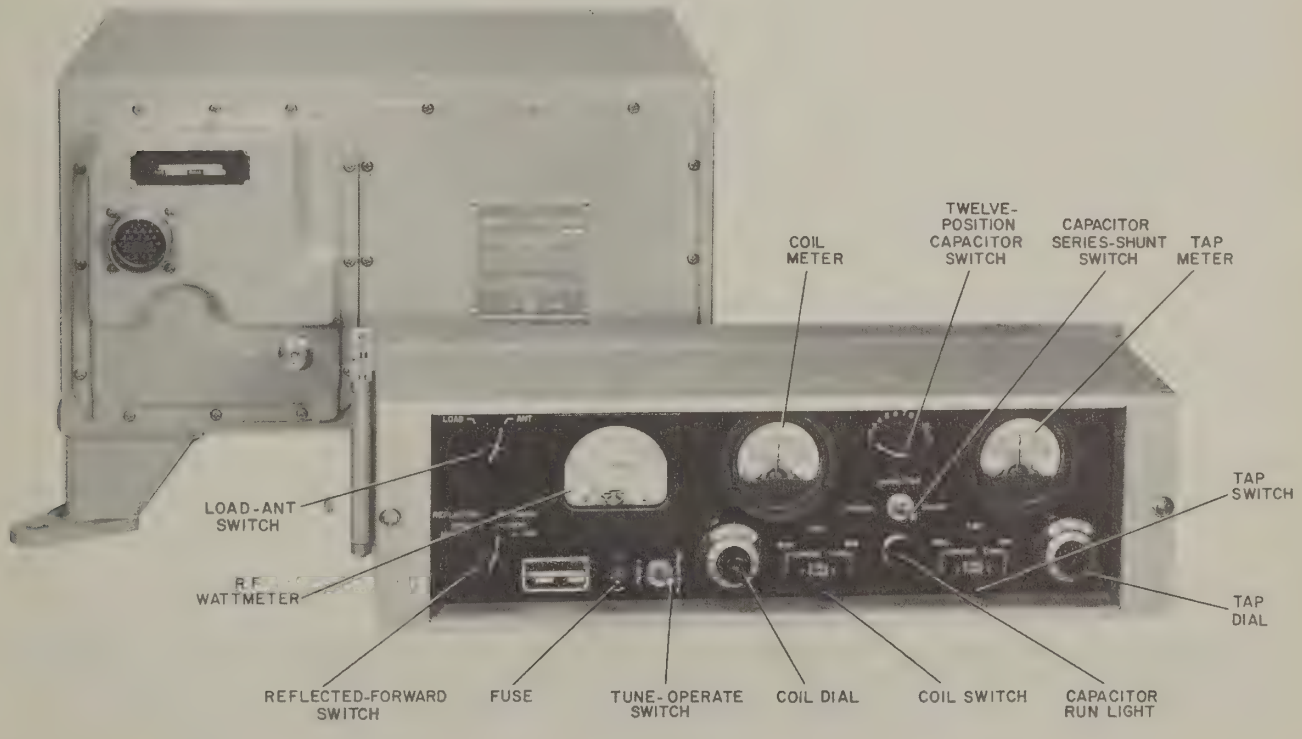


Figure 3-1. Antenna Coupler Group AN/SRA-22, Front Panel Control Location

TABLE 3-1. CONTROLS/INDICATORS AND FUNCTIONS

CONTROL OR INDICATOR	FUNCTION
COIL dial and TAP dial	COIL and TAP dials are referred to as the receiving potentiometers. Potentiometers in the antenna coupler are referred to as the sending potentiometers. The sending potentiometer is connected to the coil and tap drives in such manner that the coil and tap positions are immediately determined.
COIL COARSE TUNE-FINE TUNE switch	To position the coil to obtain a null on the the COIL meter.
TAP COARSE TUNE-FINE TUNE switch	To position the tap to obtain a null on the TAP meter.
CAPACITOR SERIES-SHUNT toggle switch	Places the capacitor either in series or shunt with the antenna.
Twelve-position CAPACITOR switch	A twelve-position wafer switch which drives the variable vacuum capacitor to a predesignated position.
REFLECTED-FORWARD switch (r-f wattmeter switch)	Selects forward or reflected power which may be read on the r-f wattmeter.
LOAD-ANT switch	Used to switch r-f power to the antenna coupler or to a dummy load.
R-f wattmeter	Reads the forward or reflected power which is selected by the REFLECTED-FORWARD switch.
COIL meter	Indicates position of the coil in relation to the coil sending potentiometers.
TAP meter	Indicates position of the tap in relation to the tap sending potentiometers.
CAPACITOR run light	Lights when variable capacitor is running, and blinks when vswr protector circuit is actuated.
TUNE-OPERATE switch	Applies 115 volts ac to coupler while tuning, and holds Radio Set AN/URC-32 in tune power while tuning.

b. SEQUENCE OF OPERATION WITH RADIO SET AN/URC-32 OR OTHER TRANSMITTERS WHEN 50-OHM LOAD IS AVAILABLE. - Refer to the operator's section of the Technical

Manual for Radio Set AN/URC-32 (NAVSHIPS 93285(A)) or to the technical manual of the transmitter being used for the tuning procedure, and proceed as follows:

NOTE

To operate controls of Coupler Control C-2698/SRA-22, it is necessary to hold the TUNE-OPERATE switch in the TUNE position. The original model of Coupler Control C-2698/SRA-22 does not have a TUNE-OPERATE switch.

(1) CONTROL SETTINGS PRIOR TO STARTING.

(a) Set the CAPACITOR SERIES-SHUNT switch to SHUNT.

(b) Set the twelve-position CAPACITOR switch to position 1.

NOTE

Make certain that the REFLECTED-FORWARD switch is set to 1000 FORWARD.

(c) Set the LOAD-ANT switch to LOAD.

(d) Set the COIL and TAP dials to 100 as shown in figure 3-2.

(e) Operate the COIL and TAP COARSE TUNE-FINE TUNE switches to obtain zero (center of scale) on the COIL and TAP meters respectively.

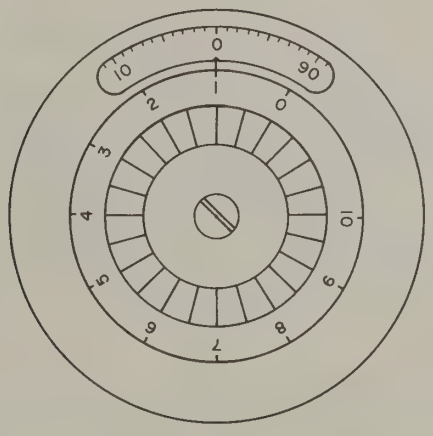


Figure 3-2. Dial Set to 100

NOTE

If the meter pointer is left of center, push the COARSE TUNE-FINE TUNE switch to the right; if the pointer is right of center, push the switch left. This applies for both the COIL and the TAP COARSE TUNE-FINE TUNE switches.

(2) TUNING PROCEDURE.

(a) Tune transmitter into dummy load (refer to transmitter operating chart).

NOTE

Leave the transmitter TUNE-OPERATE switch in the TUNE position. Set forward power to 150 watts as read on wattmeter. All C-2698/SRA-22 coupler controls equipped with the vswr protective device will automatically unkey the transmitter if the TUNE-OPERATE switch is in the OPERATE position and reflected power exceeds approximately 30 watts. This device is reset and inoperable with the TUNE-OPERATE switch in the TUNE position.

(b) Unkey the transmitter, and set the LOAD-ANT switch to ANT. The transmitter is now tuned and should not be readjusted during the following tuning procedure for Antenna Coupler Group AN/SRA-22.

(c) Holding the TUNE-OPERATE switch in TUNE position, key the transmitter. Read the forward power to see that it does not exceed 150 watts. Adjust the RF EXCITER gain control if necessary. Antenna Coupler Group AN/SRA-22 must now be tuned for a minimum reflected power condition. Set the REFLECTED-FORWARD switch to 1000 REFLECTED (or to 100 REFLECTED when reflected power is below 100 watts).

(d) Set the COIL dial to the proper one of the following settings:

FREQUENCY	COIL DIAL SETTING
2-6 mc	500
6-12 mc	350
12-16 mc	250
16-30 mc	200

CAUTION

Do not exceed these settings. Damage to the CU-714/SRA-22 may result.

(e) Operate the COIL COARSE TUNE-FINE TUNE switch in the direction required to obtain zero on the COIL meter (left COARSE TUNE position) while watching the r-f wattmeter for a dip. (This dip occurs when the reflected power is decreasing and suddenly starts increasing. It may be a sharp or a broad dip.) If a dip on the r-f wattmeter is not obtained before the pointer of the COIL meter reaches zero, release the COIL COARSE TUNE-FINE TUNE switch, and proceed to (f). If a dip on the r-f wattmeter is obtained, proceed to (i).

NOTE

Proceed to (i) when the dip in reflected power has been found. If no dip is found, proceed to (f).

(f) If a dip is not obtained, set the TAP dial to 100, and operate the TAP COARSE TUNE-FINE TUNE switch to obtain zero on the TAP meter. Set the COIL dial to 130, and operate the COIL COARSE TUNE-FINE TUNE switch to obtain zero on the COIL meter.

(g) Advance the twelve-position CAPACITOR switch one position at a time, watching the r-f wattmeter for dip. At each switch position, wait until indicator light goes out. If no dip is obtained by the time position 12 is reached, switch the CAPACITOR SERIES-SHUNT switch to SERIES. Turn the twelve-position CAPACITOR switch one step at a time toward position 1, watching the r-f wattmeter for a dip.

(h) When a dip is obtained, switch the REFLECT-FORWARD switch to the 1000 FORWARD position to see if the forward power is still high. Switch the REFLECTED-FORWARD switch back to the 100 REFLECTED position.

(i) After the dip is obtained, use the FINE TUNE positions on the COIL and TAP COARSE TUNE-FINE TUNE switches to reduce the reflected power to a minimum.

(j) Unkey the transmitter.

(k) Adjust the COIL and TAP dials for a 0 reading on the COIL and TAP meters.

(l) Record channel frequency, capacitor, coil, and tap settings on chart located on dust cover.

(3) VSWR PROTECTIVE DEVICE.

(a) If, during full power operation, the reflected power exceeds approximately 30 watts, the transmitter will be automatically unkeyed. When this condition occurs, the indicator light (which indicates capacitor running during tune-up) will blink a warning, and the wattmeter will have nearly a full-scale deflection in the 100 REFLECTED position.

(b) To reset the protective device, place the TUNE-OPERATE switch in the TUNE position, and check the tuning of the coupler. If necessary, retune the coupler according to the tuning procedure. Release the TUNE-OPERATE switch.

(c) If the protective device repeatedly disables the transmitter during full power operation but a good tune-up is indicated when the TUNE-OPERATE switch is in the TUNE position, a fault probably exists in the r-f coaxial cable, the CU-714/SRA-22, or the antenna.

(4) STOPPING THE EQUIPMENT.

Refer to transmitter operating chart. Antenna Coupler Group AN/SRA-22 normally receives its power from the transmitter.

c. TYPICAL TUNING CHART. - Figure 3-3 is a typical chart for pretuning Antenna Coupler Group AN/SRA-22. The FREQUENCY MC column is for the frequency used, CAPACITOR column is the position to which the CAPACITOR SERIES-SHUNT toggle switch and twelve-position CAPACITOR switch are set, the COIL column is the position in which the potentiometer COIL is set for 0 indication on COIL meter, and the TAP column is the position to which the potentiometer TAP is set for 0 indication on TAP meter. All of the above controls are located on the coupler control unit. A chart is located on the dust cover of the coupler control unit. Prepare large charts when more frequencies are used.

d. PRECAUTIONS. - Do not attempt to load the transmitter into the antenna coupler group with the antenna disconnected from the antenna coupler or the antenna coupler disconnected from the coupler control. The antenna coupler, coupler control, or transmitter might be seriously damaged. Do not use a "standard" chart from other installations. Calibrate for each antenna used. Antenna electrical characteristics vary, and similar antennas installed in the same location will not always provide the same impedance. Refer to table 5-3, for possible troubles and correction of the troubles.

3-3. OPERATOR'S MAINTENANCE.

a. OPERATOR'S CHECK. - Table 3-2 contains routine checks to be made by the operator.

FREQUENCY MC	CAPACITOR	COIL	TAP

Figure 3-3. Typical Tuning Chart

TABLE 3-2. ROUTINE CHECK CHART

WHAT TO CHECK	HOW TO CHECK	CHECK RESULTS
Complete equipment.	Inspect visually.	Equipment should be mounted properly, and knobs and dials should be intact.
LOAD-ANT switch, REFLECTED-FORWARD switch, twelve-position CAPACITOR switch, CAPACITOR SERIES-SHUNT switch, TAP COARSE TUNE-FINE TUNE switch, COIL COARSE TUNE-FINE TUNE switch, and TUNE-OPERATE switch.	Operate controls.	Detent action should be positive, and the knobs should be secure on shafts.
R-f wattmeter, COIL meter, TAP meter, COIL dial, and TAP dial.	Visually inspect meters, and operate dials.	The three meters should read zero. Lock mechanism on the dials should lock and unlock properly. The dials should operate smoothly when turned.

b. EMERGENCY MAINTENANCE. - The only emergency maintenance that can be performed is the replacement of the fuse in Coupler Control C-2698/SRA-22. Refer to figure 3-1 for fuse location. This fuse is in one side of the 115-volt a-c line which supplies power to the antenna coupler system. Table 3-3 contains symptoms indicating probable fuse failures.

NOTE

To operate controls of Coupler Control C-2698/SRA-22, it is necessary to hold the TUNE-OPERATE switch in the TUNE position.

TABLE 3-3. SYMPTOMS OF PROBABLE FUSE FAILURES

CONTROL SETTINGS AND INSTRUCTIONS	SYMPTOMS
Set COIL COARSE TUNE-FINE TUNE switch to COARSE TUNE.	If fuse is open, COIL meter will remain at zero.
Set TAP COARSE TUNE-FINE TUNE switch to COARSE TUNE.	If fuse is open, TAP meter will remain at zero.
Switch twelve-position CAPACITOR switch one position at a time.	If fuse is open, the CAPACITOR run light will not light.

SECTION 4

PRINCIPLES OF OPERATION

4-1. OVER-ALL FUNCTIONAL DESCRIPTION.

Antenna Coupler Group AN/SRA-22 is shown in block diagram form in figure 4-1, and the primary power distribution diagram is shown in figure 4-6. Both Coupler Control C-2698/SRA-22 and Antenna Coupler CU-714/SRA-22 are necessary to attain a complete antenna coupling system. The antenna coupler depends entirely on the coupler control sequence to accomplish tuning and loading operation.

a. Coupler Control C-2698/SRA-22 consists of the following controls:

(1) TAP motor drive and position indicator.

(2) COIL motor drive and position indicator.

(3) Twelve-position CAPACITOR switch.

(4) CAPACITOR SERIES-SHUNT switch.

(5) LOAD-ANT switch.

(6) R-f wattmeter and REFLECTED-FORWARD switch.

(7) TUNE-OPERATE switch.

b. Antenna Coupler CU-714/SRA-22 consists of the following:

(1) The variable coil tap which is motor driven and operated by a TAP motor drive control on coupler control unit.

(2) The inductor of this network consists of a windup coil, in which a silver ribbon is wound from a metal drum onto a ceramic drum to increase inductance and from the ceramic drum onto the metal drum to decrease inductance. This drive motor is operated by the COIL motor drive control on the coupler control unit.

(3) The variable capacitor is motor driven and operated by the CAPACITOR position switch on the coupler control unit. The CAPACITOR SERIES-SHUNT toggle switch on the coupler control unit places the capacitor either in series or shunt with the antenna.

4-2. FUNCTIONAL SECTIONS.

a. COUPLER CONTROL C-2698/SRA-22.

(1) TAP AND COIL INDICATORS. - Refer to figure 4-2 for the simplified schematic diagram. The position indicators (TAP and COIL) consist of receiving potentiometers in the coupler control and sending potentiometers in the antenna coupler. The sending potentiometers are connected to individual tap and coil drives by gears so that coil and tap positions

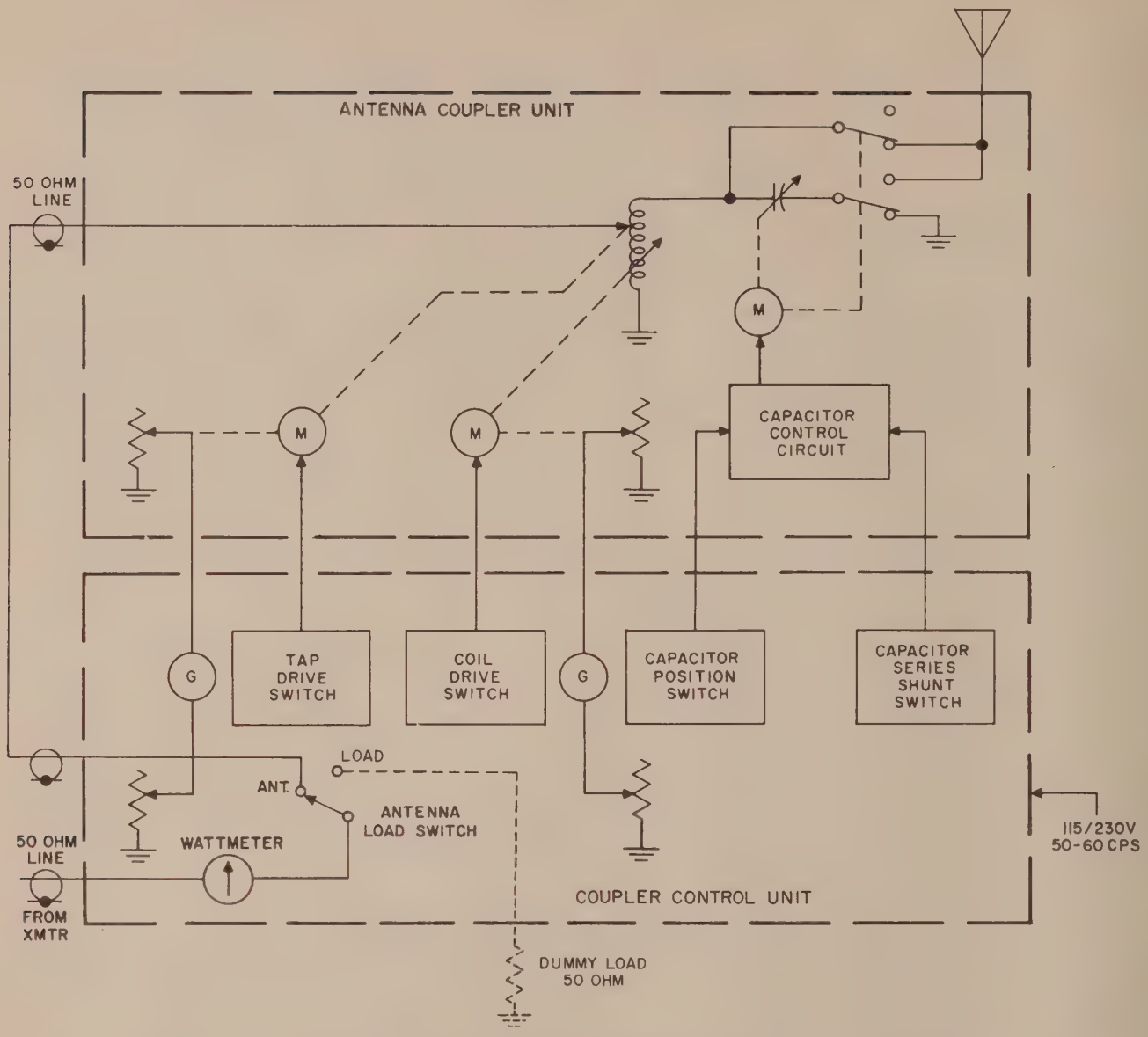


Figure 4-1. Antenna Coupler Group AN/SRA-22, Block Diagram

are immediately determined. When resistance settings of potentiometers R1 and R6 or R2 and R7 are equal, indicator meters M1 or M2 will read zero. Diodes CR3 and CR4 (on TAP indicator meter) and diodes CR5 and CR6 (on COIL indicator meter) are used to prevent excessive overload current from damaging the meters. Resistors R4 (on TAP indicator meter) and R5 (on COIL indicator meter) provide bias for the diodes. Capacitors C8 and C9 are used for r-f protection for meters M1 and M2.

(2) COIL COARSE TUNE/FINE TUNE.- Refer to figure 4 - 3 for the simplified schematic diagram. When switch S3 is set to COARSE TUNE (switch contacts 4 and 9 or 5 and 18,) 115 volts ac is applied through contacts 4 and 12 of relay K2 to common of S3, through contacts 5 or 9 to terminal 3 of coil motor B3, which is in the antenna coupler unit. When switch S3 is set to FINE TUNE (switch contacts 1 and 6 or 3 and 8), one end of capacitor C3 receives a ground through switch S3.

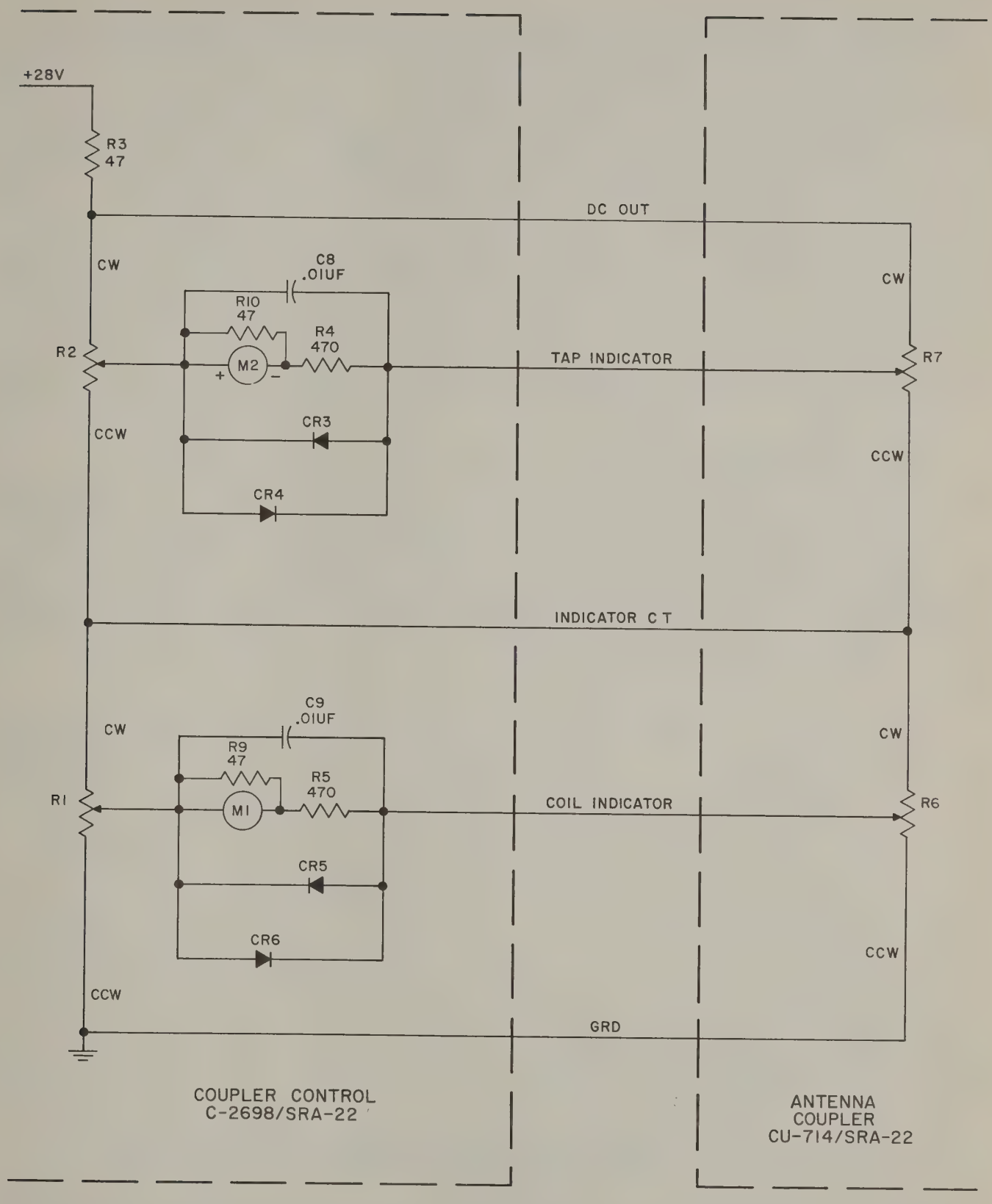
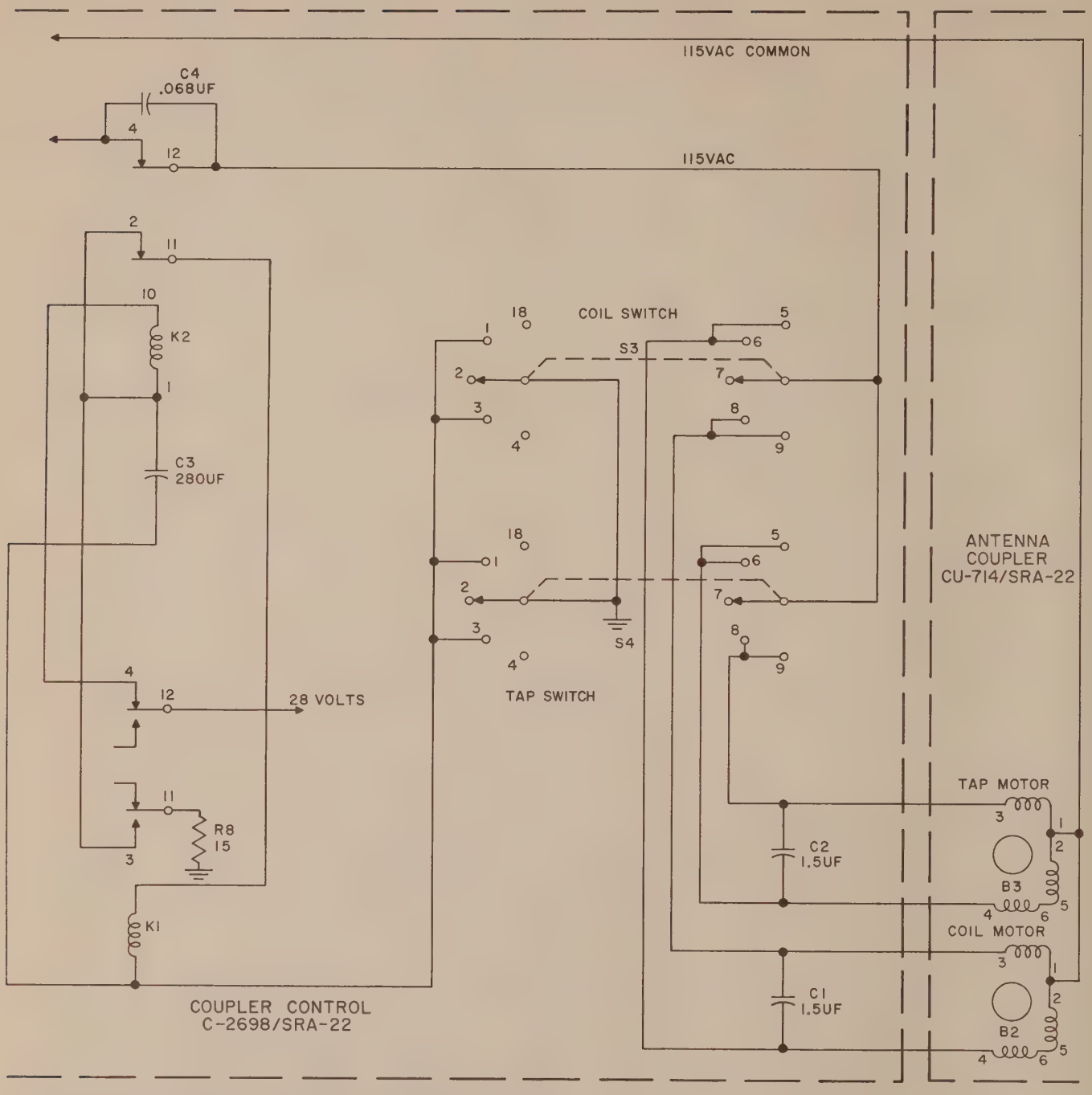


Figure 4-2. TAP and COIL Indicator Meter Circuits, Simplified Schematic Diagram



NOTE 1. R8 CHANGED TO 15 OHMS AND PLACED FROM K1 PIN TO GROUND EFFECTIVE SERIAL NUMBER 217 AND UP.

2. BUSHIPS HAS AUTHORIZED AN E I R FIELD CHANGE FOR EARLIER SERIAL NUMBER EQUIPMENTS

Figure 4-3. COIL-TAP Tuning Circuit, Simplified Schematic Diagram

Relay K2 coil receives +28 volts through contacts 4 and 12 of relay K1, as the result, relay K2 is energized. Capacitor C3 begins at this time to charge, and when it is fully charged, relay K2 will become de-energized. When relay K2 is de-energized, 28 volts is applied

through contacts 2 and 11 of relay K2 to coil of relay K1, energizing relay K1, and capacitor C3 discharges into relay K1. When relay K1 is energized from the capacitor, a ground is applied through relay K1 contacts 3 and 11 to capacitor C3, shorting the capacitor. When capacitor C3 is discharged, relay K1 will become de-energized. Each time relay K2 is de-energized, coil motor B3 in the antenna coupler unit will have 115 volts ac applied to it in pulses through contacts 6 or 8 of switch S3. The short pulses allow the coil motor to operate for short durations giving control over tuning of the coil. Capacitor C4, which is across contacts 4 and 12 of relay K2, is used as a radiation suppressor and also reduces arcing at relay contacts.

Operation of the circuit with switch S3 on COARSE TUNE (contacts 5 and 18) and COARSE TUNE (contacts 4 and 9) is the same, except the 115 volts ac is fed to terminal 4 instead of terminal 3 on coil motor B3. This permits coil motor, along with phase-shift capacitor C1, to reverse direction of rotation.

Operation of the circuit with S3 on FINE TUNE (contacts 1 and 6) and FINE TUNE (contacts 3 and 8) is the same, except pulsed 115 volts ac is fed to terminal 4 instead of terminal 3 on coil motor B3. This permits coil motor, along with phase-shift capacitor C1, to reverse direction of rotation.

(3) TAP COARSE TUNE-FINE TUNE. - The operation of the circuit with switch S4 on TAP COARSE TUNE-FINE TUNE is the same as for COIL COARSE TUNE-FINE TUNE, except tap motor B4 is operated with phase-shift capacitor C2.

(4) DIRECTIONAL COUPLER. - Refer to figure 4-4 for the simplified schematic diagram. Transmission line current I flows through the line center conductor and through the center of a toroid coil. The conductor forms the primary and the coil the secondary of a toroidal transformer T1. Induced toroid current produces a voltage that divides equally across series resistors R1 and R2. This results in two equal voltages, E_1 and E_2, across the

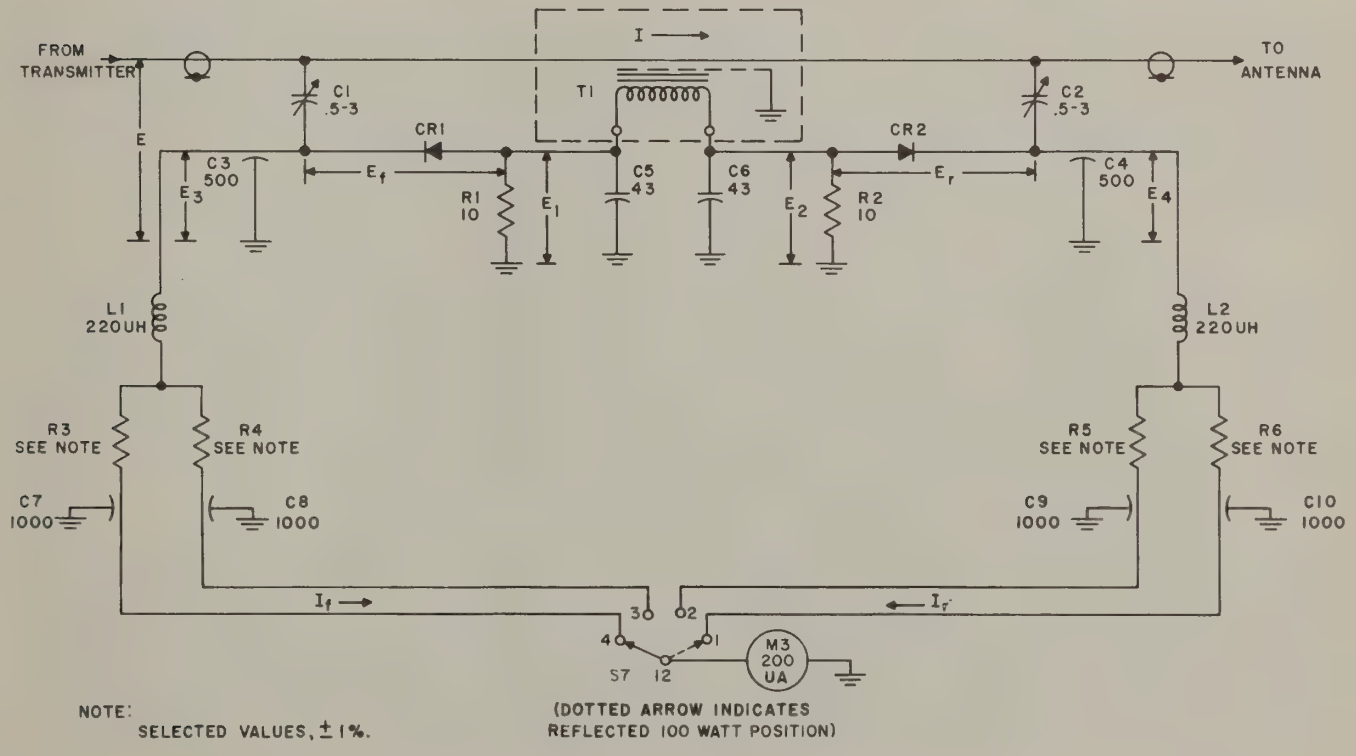


Figure 4-4. Directional Coupler, Simplified Schematic Diagram

resistors. Since the junction of the R1 and R2 is grounded, E_1 and E_2 are opposite in phase and proportional to line current I. Line voltage E_1 is applied across two capacity dividers, C1-C3 and C2-C4, resulting in two equal voltages of the same phase, E_3 and E_4.

When the transmission line is mismatched (terminated in an impedance other than to 50 ohms), E_1 and E_2 represent the vector sum of two components, one proportional to the current of the forward wave, and the other proportional to the current of the reflected wave. Similarly, E_3 and E_4 represent the vector sum of forward and reflected wave voltage components. Capacitors C1 and C2 are factory adjusted so that the magnitude of the forward voltage and current components are identical; also the reflected components are then equal. The settings of C1 and C2 are correct for a 50-ohm transmission line only.

The phase relationship between the various components is such that the r-f voltage across rectifier CR1 (E_f) is equal to the arithmetic sum of the two equal forward components, while the r-f voltage across rectifier CR2 (E_r) is equal to the arithmetic sum of the two equal reflected components.

The r-f voltages, E_f and E_r, are rectified and filtered by CR1, CR2, C3, and C4 to produce d-c currents I_f and I_r through meter M3. The meter scale is calibrated in such a way that I_f produces a scale reading proportional to forward power, while I_r produces a scale reading proportional to reflected power.

Calibrating resistors R4, R5 (1000-watt scale), R3 and R6 (100-watt scale) are selected so that I_f and I_r give accurate indications of the two power levels. Accuracy of the r-f wattmeter is maintained over a frequency range of 2.0 to 30.0 megacycles on both the inductively coupled and capacitively coupled elements. In the inductive element, the increase with frequency of the induced voltage is canceled by the voltage drop in the toroidal coil due to the increase with frequency of the inductive reactance. In the directly coupled capacitive element, the ratio of the capacitive reactances in the voltage divider remains constant even though the reactance varies with frequency. Capacitors C5 and C6 compensate for the residual series inductances of resistors R1 and R2.

Real power is the power output of the transmitter. When a line is perfectly matched, reflected power is zero and real power is equal to forward power. When the line is mismatched, the phase relationship between the forward power and reflected wave components causes the forward power to increase by an amount equal to the magnitude of the reflected power. Since the reflected power cancels a portion of the forward power at the transmitter terminals, the real power in the line is equal to the difference between forward and reflected power or: REAL POWER = FORWARD POWER - REFLECTED POWER.

(5) TRANSFER RELAY AND LOAD-ANT SWITCH. - The antenna is connected to the receiver through the tuned circuit in Antenna Coupler CU-714/SRA-22 to normally closed contacts on the transfer relay, K3, which is in Coupler Control C-2698/SRA-22. Radio Set AN/URC-32 feeds through the wattmeter coupler to the common contact of LOAD-ANT switch S1. When switch S1 is in LOAD position, the transmitter will feed into an external load. When in ANT position, the transmitter will feed the antenna through transfer relay K3 contacts through tuned circuit to the antenna. Transfer is provided by transfer relay K3 which is operated by grounding the key line in Radio Set AN/URC-32.

When the keying circuits are released, K3 de-energizes and returns the antenna circuit to the receiver. Contacts 3 and 4 on transfer relay K3 is connected in the bias circuit of r-f amplifier of Radio Set AN/URC-32. When Radio Set AN/URC-32 is keyed, transfer relay K3 is energized and contacts 3 and 4 on the transfer relay are opened removing the bias to r-f amplifier allowing r-f output. If when Radio Set AN/URC-32 is keyed and the transfer relay should not energize, the r-f amplifier of the Radio Set AN/URC-32 will have no output thus protecting the receiver section of Radio Set AN/URC-32 from the r-f output of Radio Set AN/URC-32.

(6) TUNE-OPERATE SWITCH. - Antenna Coupler Group AN/SRA-22 has no 115 volts ac applied to it until the TUNE-OPERATE switch is pressed and held in the TUNE position. This prevents Coupler Control C-2698/SRA-22 from being detuned unintentionally. The TUNE-OPERATE switch also limits Radio Set AN/URC-32 to tune power while Antenna Coupler Group AN/SRA-22 is being tuned.

(7) VSWR PROTECTOR - If, during full operation, the reflected power exceeds approximately 30 watts, the vswr protector circuit will automatically unkey the transmitter and cause the CAPACITOR run light to blink. Refer to figure 4-4A for the simplified schematic diagram.

Diode CR1, Zener diode CR2, resistors R1, R2, R3, and R4, and thermistor RT1 compose a regulated negative power supply. The negative power supply output is applied to the cathode of diode CR4, biasing diode CR4 to conduct when the reflected power exceeds approximately 30 watts. The reflected power is applied from pin 1 of switch S7, through resistor R5, to the gate of diode CR4. When the reflected power exceeds approximately 30 watts, diode CR4 will conduct. Conduction of diode CR4 energizes relay K1. Energized contacts 8 and 3 of relay K1 open the transmitter interlock number 2 line, which unkeys the transmitter. Diode CR3, capacitor C2, resistor R6, and CAPACITOR run light DS3 constitute a relaxation oscillator circuit. Energized contacts 4 and 7 of relay K1 switch capacitor C2 across the CAPACITOR run light, causing the CAPACITOR run light to blink. This indicates that the reflected power is approximately 30 watts and the vswr protector circuit has been actuated. To reset the vswr protector circuit, hold the TUNE-OPERATE switch in the TUNE position, and retune the antenna coupler. After the antenna coupler is retuned, release the TUNE-OPERATE switch.

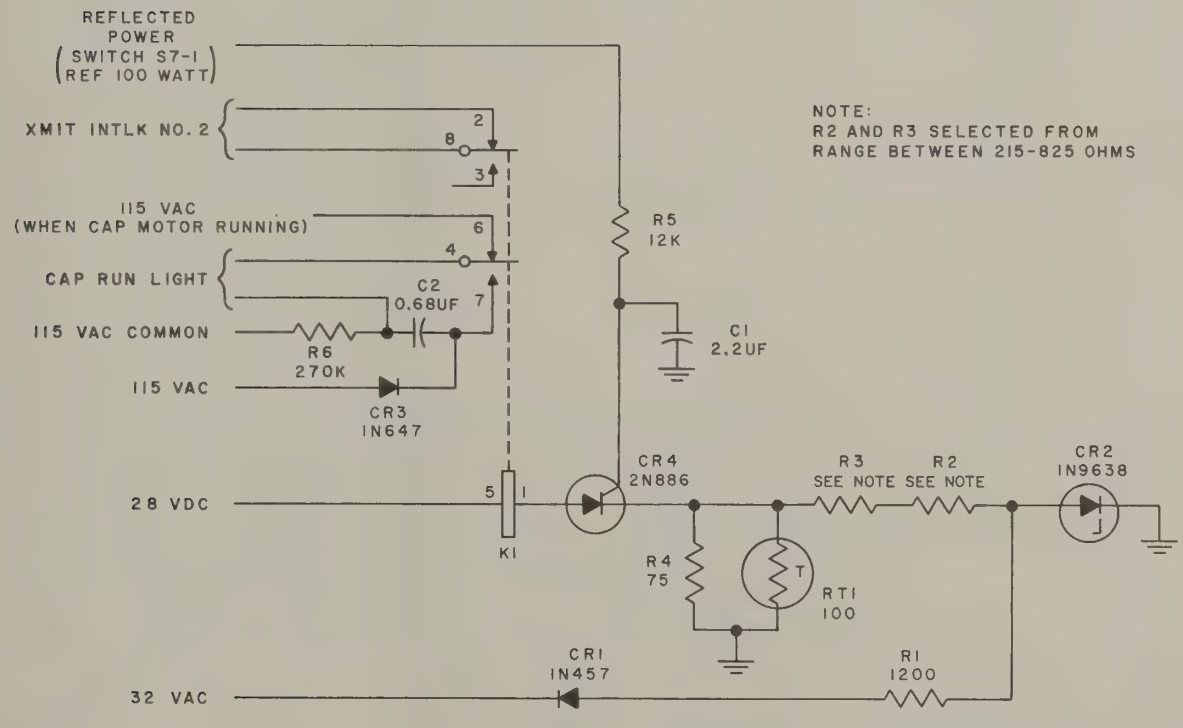


Figure 4-4A. VSWR Protector, Simplified Schematic Diagram

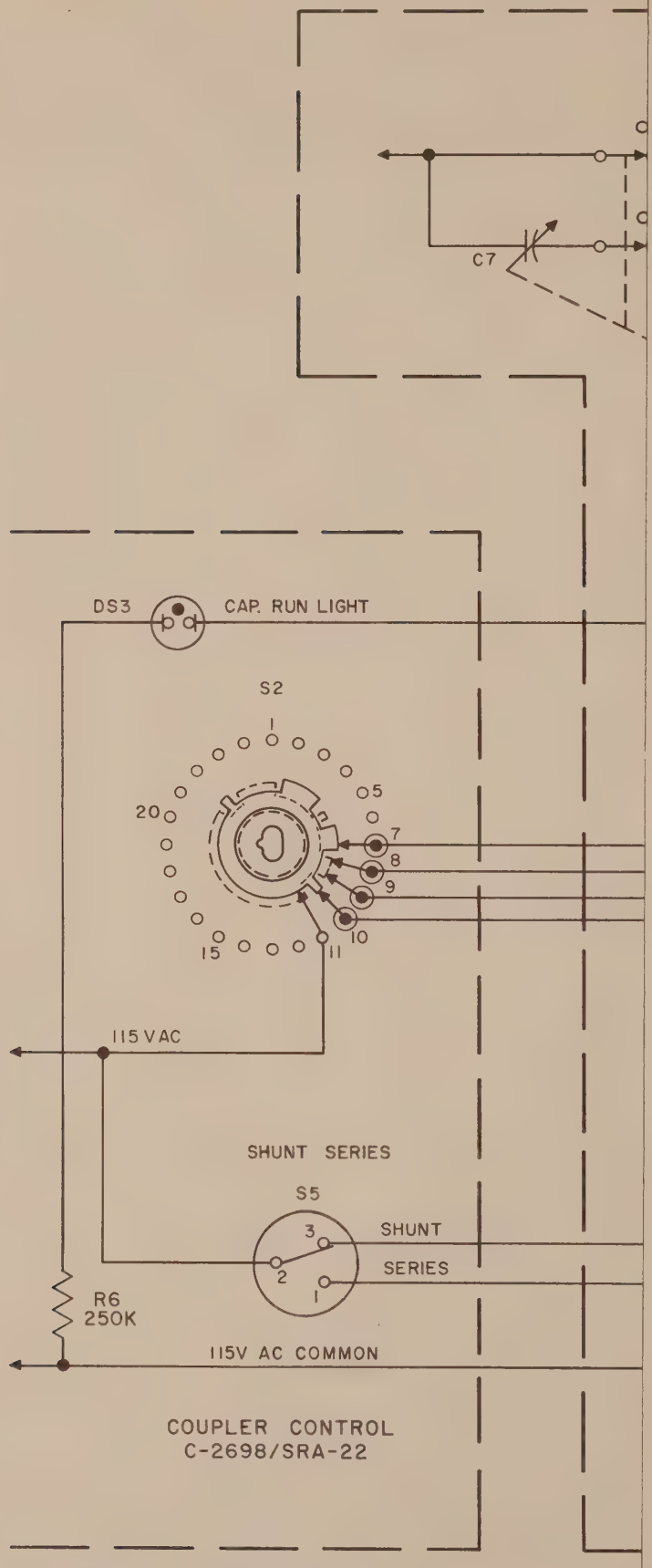


Figure 4-5. Capacitor Drive Circuit, Simplified Schematic Diagram

b. ANTENNA COUPLER CU-714/SRA-22.

(1) CAPACITOR DRIVE CIRCUIT. - The twelve-position CAPACITOR switch, located in the control coupler unit, is a twelve-position wafer switch which drives the variable vacuum capacitor to a predesignated position. Refer to figure 4-5 for the simplified schematic diagram.

When one of the twelve positions on the switch is selected, 115 volts ac is fed through the common contact of switch S2 through contacts 7, 8, 9, or 10 depending upon which position is selected to S10 contacts 7, 8, 9, or 10 in the antenna coupler unit. From the common contact of switch S10, the 115 volts ac is applied to the two common contacts of switch S1 through contacts 2 or 3 to capacitor motor B2. The contact (2 or 3) will depend upon the position to which switch S2 is set and at which end of the range capacitor limit switch S11 is positioned.

The CAPACITOR run light is connected from the 115-volt common through a 250K resistor to the common contact of switch S10 on the antenna coupler. Capacitor drive switch S11 is gear driven by capacitor motor B2. When switch S11 is driven to the position to break the circuit, capacitor motor B2 will stop, and the CAPACITOR run light will go out.

The capacitor is driven from minimum to maximum capacitance, or the reverse, by motor B2. Switch S11 determines whether the capacitor is in series or shunt with the antenna in accordance with switch S5. Switch S11 is provided with a cam-operated, 192.0-degree sector gear. The capacitor is driven from minimum to maximum capacitance in shunt with the antenna. When the maximum position is reached, switch S9 operates and places the capacitor in series with the antenna. Switch S11 causes B1 to drive the capacitor from maximum to minimum capacitance in series. When the minimum position is reached, switch S9 operates again and places the capacitor in shunt with the antenna.

(2) TUNING AND LOADING. - In general, the following conditions apply to Antenna Coupler CU-714/SRA-22 operation. When the antenna appears capacitive and less than 50 ohms, no additional capacity is necessary to resonate the antenna. When the antenna appears inductive and less than 50 ohms, series capacity is necessary to resonate the antenna. When the antenna appears inductive and more than 50 ohms, shunt capacity is necessary to resonate the antenna. Wire and whip antenna reactance periodically changes sign many times through the frequency range of 2.0 to 30.0 megacycles. Consequently, series or shunt capacity is employed for about half of the frequencies of the antenna coupler.

Tuning and loading is performed by manually operating the controls on the front panel of Control Coupler C-2698/SRA-22 for a minimum reflected power and a high forward power as indicated on the r-f wattmeter in the control coupler. Refer to figure 4-7 for relationship of swr to incident and reflected power.

(3) BLOWER. - Keyed 115 volts ac is applied to pin 3 of J9 on the blower assembly when Radio Set AN/URC-32 is transmitting. Pin 2 of J9 on the blower assembly is supplied with 115 volts ac through a temperature switch, S8. This switch will not close until the temperature in Antenna Coupler CU-714/SRA-22 reaches +65°C (+149°F) completing the circuit to the blower motor. The enclosed air of the antenna coupler is circulated by the blower when the transmitter is keyed or when the internal temperature exceeds +65°C (+149°F). The enclosed air is forced through the double wall of the case and cooled by natural radiation and convection.

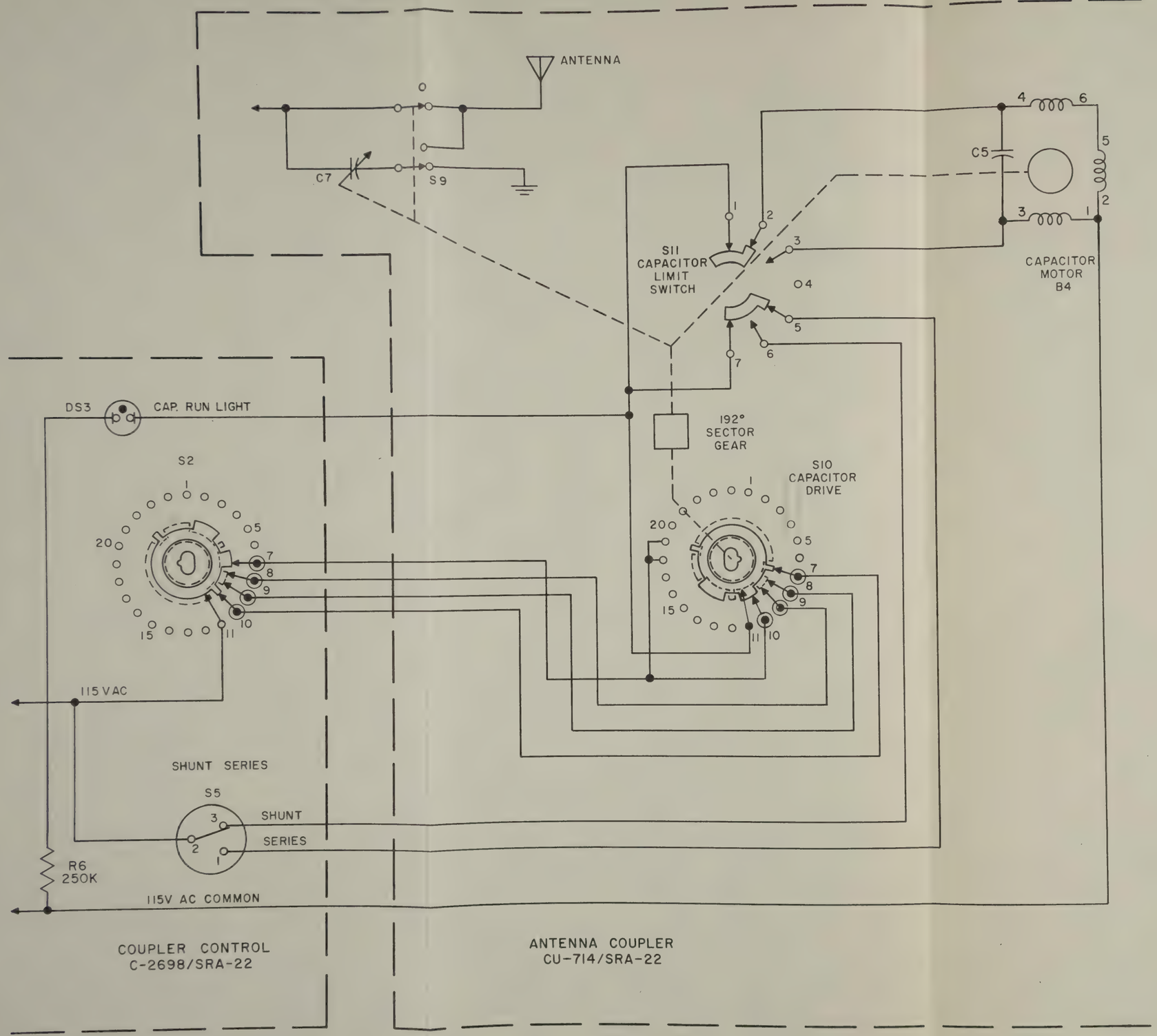


Figure 4-5. Capacitor Drive Circuit, Simplified Schematic Diagram

b. ANTENNA COUPLER CU-714/SRA-22.

(1) CAPACITOR DRIVE CIRCUIT. - The twelve-position CAPACITOR switch, located in the control coupler unit, is a twelve-position wafer switch which drives the variable vacuum capacitor to a predesignated position. Refer to figure 4-5 for the simplified schematic diagram.

When one of the twelve positions on the switch is selected, 115 volts ac is fed through the common contact of switch S2 through contacts 7, 8, 9, or 10 depending upon which position is selected to S10 contacts 7, 8, 9, or 10 in the antenna coupler unit. From the common contact of switch S10, the 115 volts ac is applied to the two common contacts of switch S1 through contacts 2 or 3 to capacitor motor B2. The contact (2 or 3) will depend upon the position to which switch S2 is set and at which end of the range capacitor limit switch S11 is positioned.

The CAPACITOR run light is connected from the 115-volt common through a 250K resistor to the common contact of switch S10 on the antenna coupler. Capacitor drive switch S11 is gear driven by capacitor motor B2. When switch S11 is driven to the position to break the circuit, capacitor motor B2 will stop, and the CAPACITOR run light will go out.

The capacitor is driven from minimum to maximum capacitance, or the reverse, by motor B2. Switch S11 determines whether the capacitor is in series or shunt with the antenna in accordance with switch S5. Switch S11 is provided with a cam-operated, 192.0-degree sector gear. The capacitor is driven from minimum to maximum capacitance in shunt with the antenna. When the maximum position is reached, switch S9 operates and places the capacitor in series with the antenna. Switch S11 causes B1 to drive the capacitor from maximum to minimum capacitance in series. When the minimum position is reached, switch S9 operates again and places the capacitor in shunt with the antenna.

(2) TUNING AND LOADING. - In general, the following conditions apply to Antenna Coupler CU-714/SRA-22 operation. When the antenna appears capacitive and less than 50 ohms, no additional capacity is necessary to resonate the antenna. When the antenna appears inductive and less than 50 ohms, series capacity is necessary to resonate the antenna. When the antenna appears inductive and more than 50 ohms, shunt capacity is necessary to resonate the antenna. Wire and whip antenna reactance periodically changes sign many times through the frequency range of 2.0 to 30.0 megacycles. Consequently, series or shunt capacity is employed for about half of the frequencies of the antenna coupler.

Tuning and loading is performed by manually operating the controls on the front panel of Control Coupler C-2698/SRA-22 for a minimum reflected power and a high forward power as indicated on the r-f wattmeter in the control coupler. Refer to figure 4-7 for relationship of swr to incident and reflected power.

(3) BLOWER. - Keyed 115 volts ac is applied to pin 3 of J9 on the blower assembly when Radio Set AN/URC-32 is transmitting. Pin 2 of J9 on the blower assembly is supplied with 115 volts ac through a temperature switch, S8. This switch will not close until the temperature in Antenna Coupler CU-714/SRA-22 reaches +65°C (+149°F) completing the circuit to the blower motor. The enclosed air of the antenna coupler is circulated by the blower when the transmitter is keyed or when the internal temperature exceeds +65°C (+149°F). The enclosed air is forced through the double wall of the case and cooled by natural radiation and convection.

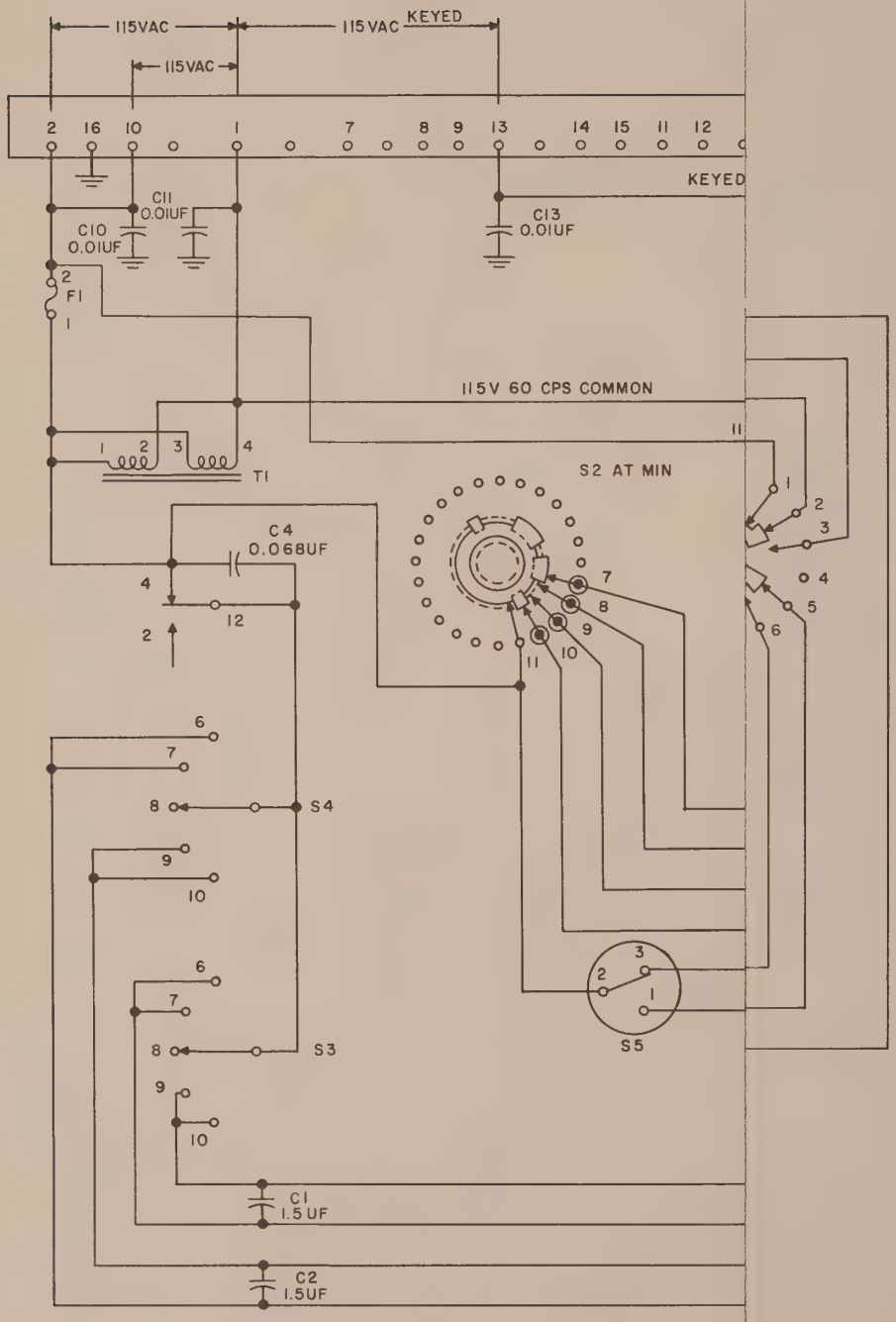


Figure 4-6. Antenna Coupler Group AN/SRA-22, Primary Power Distribution, Schematic Diagram

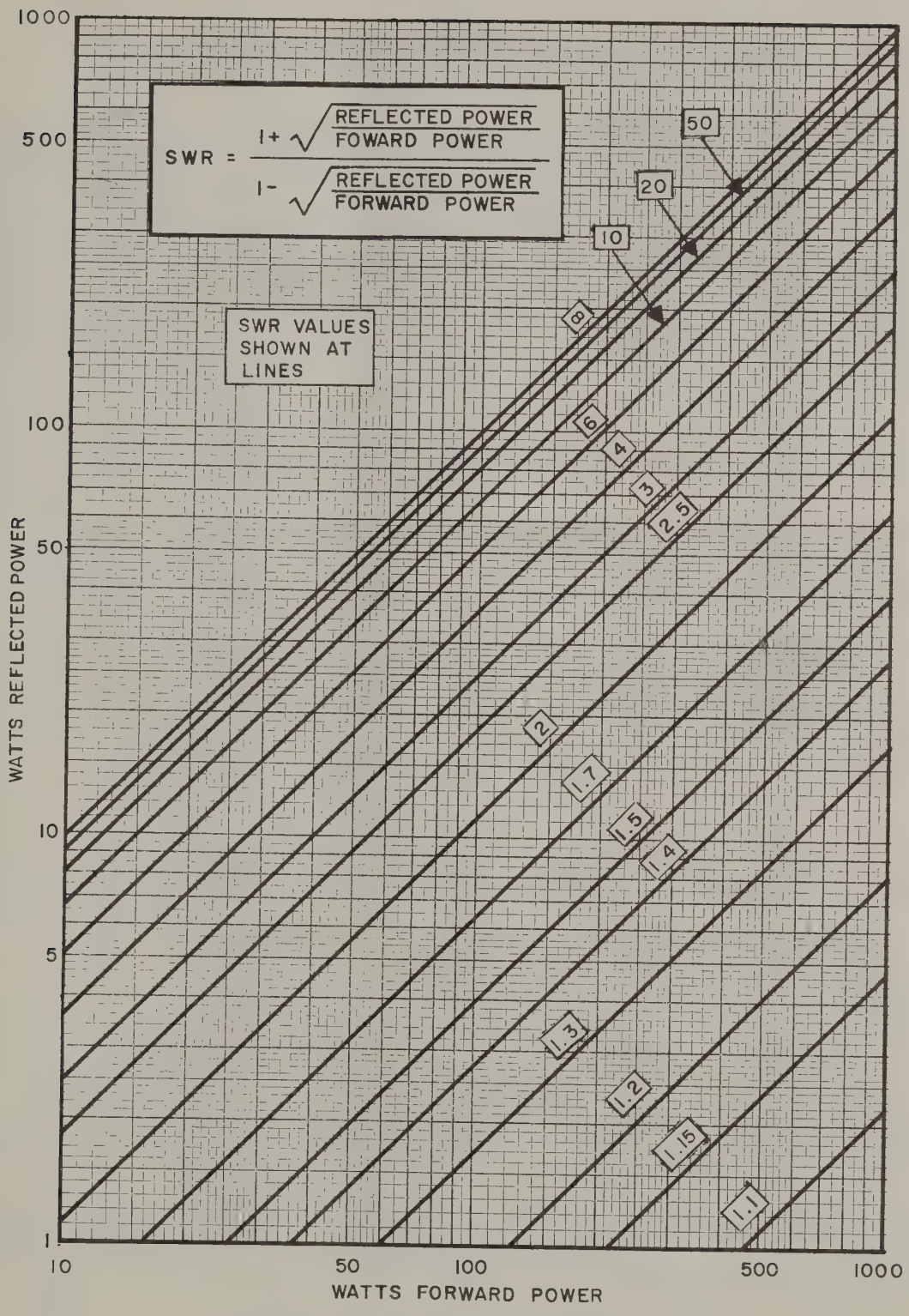


Figure 4-7. Relationship of SWR to Incident and Reflected Power

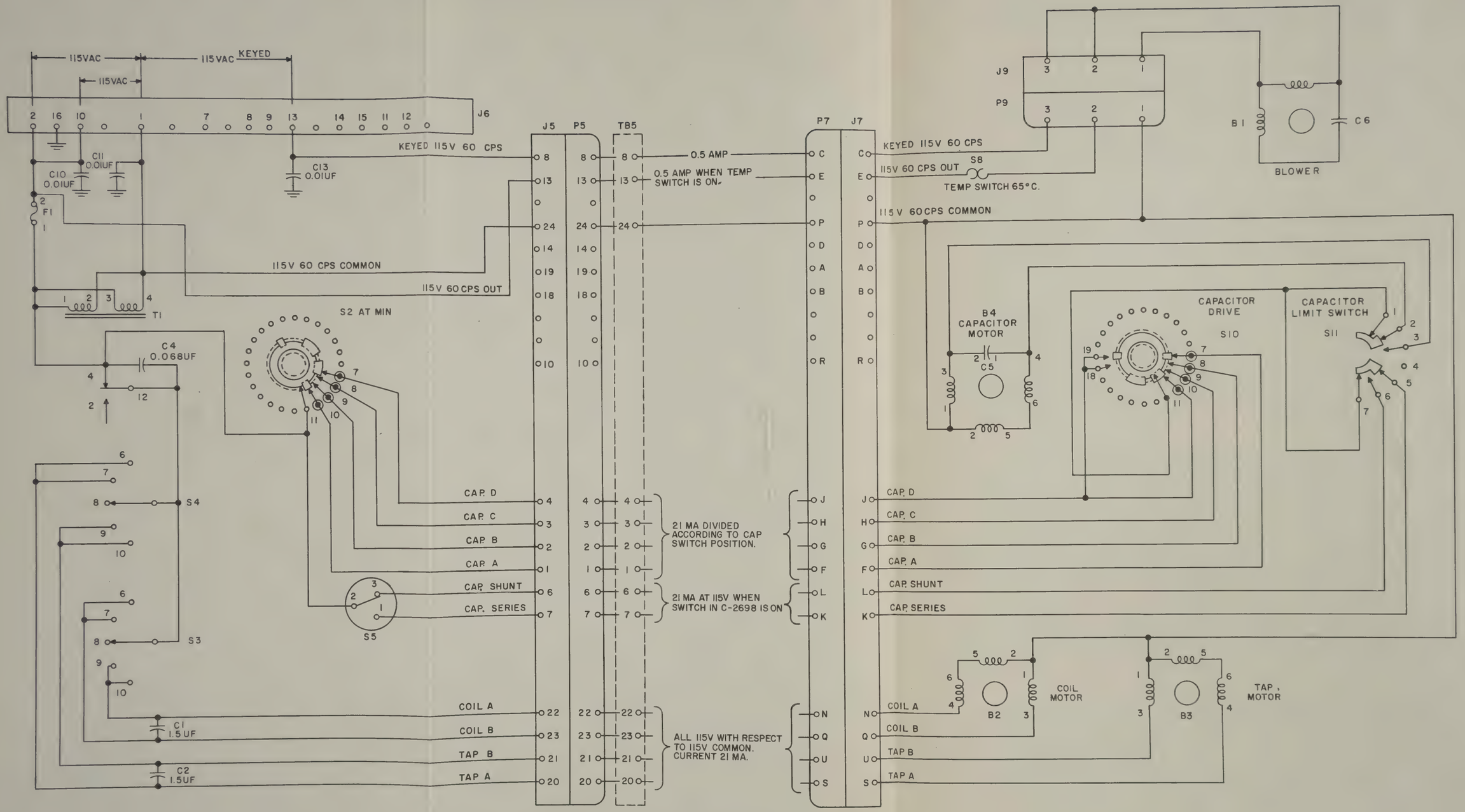


Figure 4-6. Antenna Coupler Group AN/SRA-22, Primary Power Distribution, Schematic Diagram

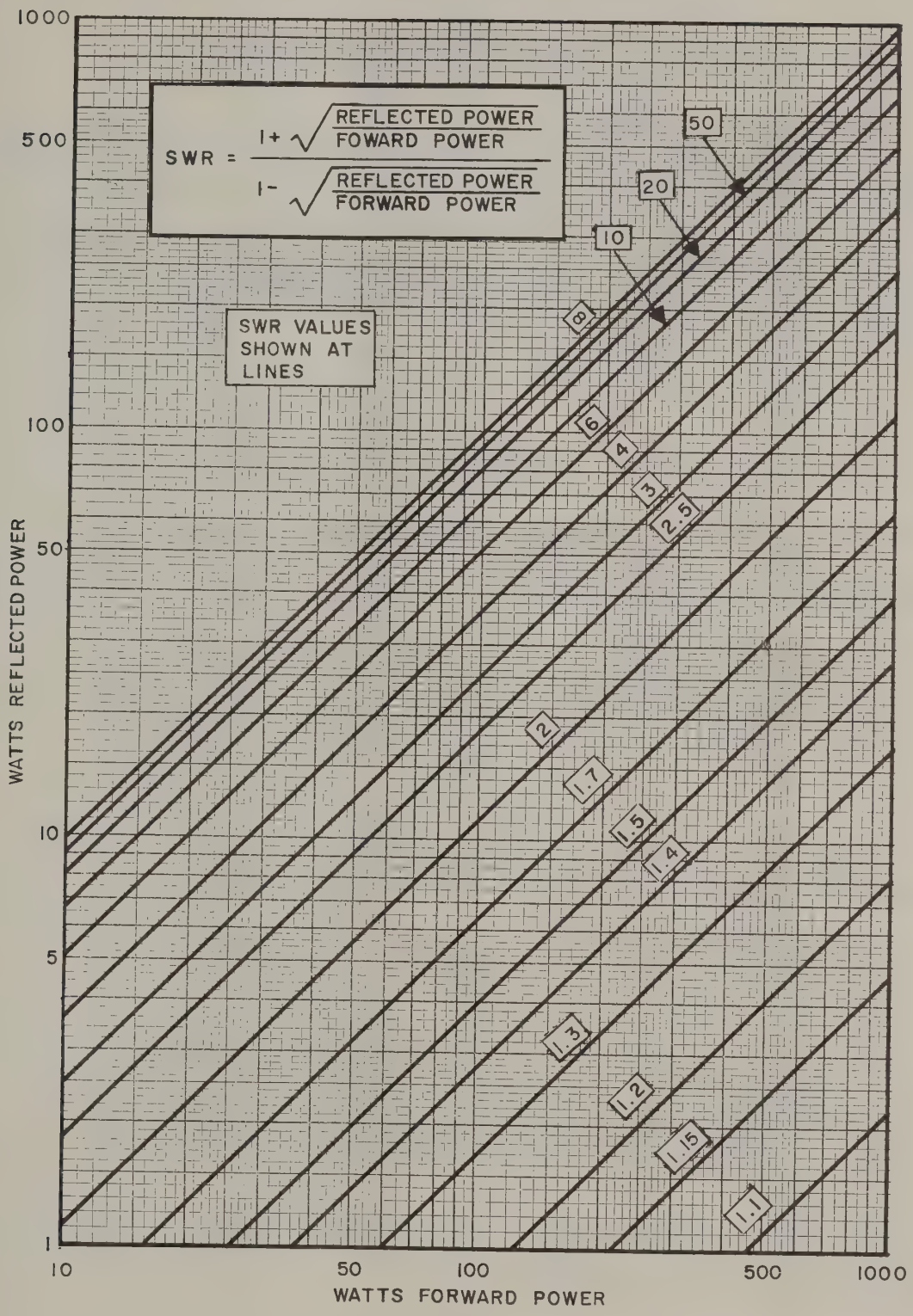


Figure 4-7. Relationship of SWR to Incident and Reflected Power

FAILURE REPORT

"Report each failure of the equipment, whether caused by a defective part, wear, improper operation, or an external cause. Use ELECTRONIC FAILURE REPORT form DD787. Each pad of the forms includes full instructions for filling out the forms and forwarding them to the Bureau of Ships. However, the importance of providing complete information cannot be emphasized too much. Be sure that you include the model designation and serial number of the equipment (from the equipment identification plate), the type number and serial number of the major unit (from the major unit identification plate), and the type number and reference designation of the particular defective part (from the technical manual). Describe the cause of the failure completely, continuing on the back of the form if necessary. Do not substitute brevity for clarity. And remember--there are two sides to the failure report--

"YOUR SIDE"

"Every FAILURE REPORT is a boost for you:

1. It shows that you are doing your job.
2. It helps make your job easier.
3. It insures available replacements.
4. It gives you a chance to pass your knowledge to every man on the team

"BUREAU SIDE"

"The Bureau of Ships uses the information to:

1. Evaluate present equipment.
2. Improve future equipment.
3. Order replacements for stock.
4. Prepare field changes.
5. Publish maintenance data.

Always keep a supply of failure report forms on board. You can get them from the nearest Forms and Publications Supply Distribution Point."

SECTION 5

MAINTENANCE

5-1. GENERAL.

This section contains over-all trouble shooting, functional section trouble shooting, and maintenance information for Antenna Coupler Group AN/SRA-22.

5-2. TEST EQUIPMENT AND SPECIAL TOOLS.

There are no special tools required for trouble-shooting procedures described in this manual. The only test equipment necessary is Multimeter AN/PSM-4 or equivalent.

5-3. OVER-ALL TROUBLE SHOOTING.

a. PRELIMINARY CHECK. - The following sensory observations should be made as the first step in localizing the cause of trouble.

(1) Check fuse on Coupler Control C-2698/SRA-22. Refer to figure 3-1 for fuse location and table 3-3 for symptoms of probable fuse failure.

(2) Inspect plugs to connectors J1 through J6 on rear of Coupler Control C-2698/SRA-22 for proper contact to the connectors.

(3) Inspect plugs to connectors J7 and J8 on Antenna Coupler CU-714/SRA-22 for proper contact to the connectors.

(4) Inspect the terminal board TB5 for loose or intermittent connections.

(5) Inspect connection from antenna to antenna terminal on Antenna Coupler CU-714/SRA-22.

(6) Look for any physical damage to cables or equipment.

b. CONTROL SETTINGS. - All controls on the front panel of Coupler Control C-2698/SRA-22 may be left in any position except the LOAD-ANT switch (S1), which should be set to ANT position, and the REFLECTED-FORWARD switch (S7) which should be set to 1000 REFLECTED position.

NOTE

To operate controls of Coupler Control C-2698/SRA-22, it is necessary to hold the TUNE-OPERATE switch in TUNE position.

c. SYSTEM TROUBLE-SHOOTING CHART. - Table 5-1 describes the checks to be made to localize the cause of trouble to a functional section of Antenna Coupler Group AN/SRA-22. The functional sections are Antenna Coupler CU-714/SRA-22 and Coupler Control C-2698/SRA-22.

d. TERMINAL BOARD TB5. - On all units supplied with terminal board TB5, remove the protective cover to make measurements. Pin 1 of plug P5 corresponds to terminal 1 of TB5, etc.

CAUTION

This terminal board (TB5) has 115 volts ac.

TABLE 5-1. ANTENNA COUPLER GROUP AN/SRA-22 SYSTEM TROUBLE-SHOOTING CHART

STEP	PRELIMINARY ACTION	NORMAL INDICATION	NEXT STEP
1	Turn switch S1 of low-voltage power supply of Radio Set AN/URC-32 to ON position. Release fasteners on dust cover of coupler control and remove dust cover.	Red indicator light on low-voltage power supply will light (on Radio Set AN/URC-32).	
2	Set COIL COARSE TUNE-FINE TUNE switch to COARSE TUNE.	COIL meter (on front panel of Coupler Control C-2698/SRA-22) should show an indication and slowly change in reading while the COIL COARSE TUNE-FINE TUNE switch is set to COARSE TUNE.	If no indication is obtained, check fuse F1 which is located on coupler control front panel. If fuse F1 is not open, refer to tables 5-2, 5-3, 5-4, 5-5, and 5-6. If indication is normal, proceed with step 3.
3	Set TAP COARSE TUNE-FINE TUNE switch to COARSE TUNE.	TAP meter (on front panel of Coupler Control C-2698/SRA-22) should show an indication and slowly change in reading while the TAP COARSE TUNE-FINE TUNE switch is set to COARSE TUNE.	If no indication is obtained, refer to tables 5-2, 5-3, 5-4, 5-5, and 5-6. If indication is normal, proceed with step 4.
4	Set TAP COARSE TUNE-FINE TUNE switch to FINE TUNE.	TAP meter (on front panel of Coupler Control C-2698/SRA-22) should show an indication and slowly change in reading while the TAP COARSE TUNE-FINE TUNE switch is set to FINE TUNE.	If no indication is obtained, refer to tables 5-2, 5-3, 5-4, 5-5, and 5-6. If indication is normal, proceed with step 5.
5	Set COIL COARSE TUNE-FINE TUNE switch to FINE TUNE.	COIL meter (on front panel of Coupler Control C-2698/SRA-22) should show an indication and slowly change in reading while the TAP COARSE TUNE-FINE TUNE switch is set to FINE TUNE.	If no indication is obtained, refer to tables 5-2, 5-3, 5-4, 5-5, and 5-6. If indication is normal, proceed with step 6.

TABLE 5-1. ANTENNA COUPLER GROUP AN/SRA-22
SYSTEM TROUBLE-SHOOTING CHART (Cont)

STEP	PRELIMINARY ACTION	NORMAL INDICATION	NEXT STEP
6	Switch twelve-position CAPACITOR switch one position at a time.	The CAPACITOR run light should light.	If no indication is obtained, refer to tables 5-2, 5-3, 5-4, 5-5, and 5-6. If indication is normal, proceed with step 7.
7	Refer to the operator's section of the Technical Manual for Radio Set AN/URC-32 for the tuning procedure of the radio set and paragraph 3-2b of this manual for sequence of operation. Set the CAPACITOR, COIL, and TAP dials (on coupler control) to a setting recorded on the charts supplied on dust cover. Key radio set, and operate the COIL and TAP COARSE TUNE-FINE TUNE switches for a null on COIL meter and TAP meter.	Reflected power on r-f wattmeter M3 should read approximately zero.	If indication is abnormal, refer to tables 5-2, 5-3, 5-4, 5-5, and 5-6. If indication is normal with a 1.3:1 swr or less, proceed with step 8.
8	With the transmitter unkeyed, remove the coaxial cable which connects Coupler Control C-2698/SRA-22 to Antenna Coupler CU-714/SRA-22. Leave the TUNE-OPERATE switch in the OPERATE position. Set REFLECTED-FORWARD switch to 100 REFLECTED. Slowly increase the RF EXCITER drive until system is automatically unkeyed.	System should unkey at approximately 30 watts ±10 watts reflected. CAPACITOR run light should blink.	If indication is abnormal, refer to tables 5-2 and 5-3. If indication is normal, the equipment is operating normally.

5-4. FUNCTIONAL SECTION TROUBLE SHOOTING.

a. PRELIMINARY CHECK. - The preliminary checks for this section are the same as preliminary checks for over-all trouble-shooting section (paragraph 5-3a).

b. CONTROL SETTINGS. - All controls on the front panel of Coupler Control C-2698/SRA-22 may be left in any position, except the LOAD-ANT switch S1 which should be set to ANT position and the REFLECTED-FORWARD switch S7 which should be set to 1000 REFLECTED position. Set the twelve-position CAPACITOR switch S2 to position 1.

NOTE

To operate controls of Coupler Control C-2698/SRA-22, it is necessary to hold the TUNE-OPERATE switch S6 in the TUNE position.

c. FUNCTIONAL SECTION TROUBLE-SHOOTING CHART. - Tables 5-2 and 5-3 isolate the particular part at fault within a functional section (Antenna Coupler CU-714/SRA-22 or Coupler Control C-2698/SRA-22). Refer to figure 5-16 for the schematic diagram of the Coupler Control C-2698/SRA-22. Refer to figure 5-17 for the schematic diagram of the Antenna Coupler CU-714/SRA-22.

TABLE 5-2. COUPLER CONTROL C-2698/SRA-22 TROUBLE-SHOOTING CHART

STEP	TEST POINT	PRELIMINARY ACTION	NORMAL INDICATION	NEXT STEP
1		Turn switch S1 of low-voltage power supply of Radio Set AN/URC-32 to ON position.	Red indicator light on low-voltage power supply will light (on Radio Set AN/URC-32).	
2		Remove the two screws that mount the right end of the rear panel to the rack. This will allow the unit to swing out on its hinge making the components available.		
3	Figures 5-1, 5-2, and 5-3 (nut on Bakelite board).	Connect negative terminal of Multimeter AN/PSM-4 to chassis and positive terminal to +28 volts.	Multimeter should read +28 volts.	If indication is normal, proceed with step 4.
4	Figures 5-1, 5-2, and 5-3. CCW and CW are marked on potentiometer R1.	Connect multimeter across TAP potentiometer R1 with positive terminal to CW and negative terminal to CCW.	Multimeter should read between +9 and +12 volts.	If indication is normal, proceed with step 5. If the voltage is exceedingly high (+28 volts), de-energize radio set, and check (Cont)

TABLE 5-2. COUPLER CONTROL C-2698/SRA-22 TROUBLE-SHOOTING CHART (Cont)

STEP	TEST POINT	PRELIMINARY ACTION	NORMAL INDICATION	NEXT STEP
4 (Cont)				(Cont) potentiometer R1 for an open winding. Replace R1 if necessary.
5	Figures 5-1, 5-2, and 5-3. CCW and CW are marked on potentiometer R2.	Connect multimeter across COIL potentiometer R2 with positive terminal to CCW and negative terminal to CW.	Multimeter should read between +9 and +12 volts.	If indication is normal, proceed with step 6. If the voltage is exceedingly high (+28 volts), de-energize radio set, and check potentiometer R2 for an open winding. Replace R2 if necessary.
6	Figures 5-1, 5-2, and 5-3. CAPACITOR run light and pins 20, 21, 22, and 23 of J5.	Remove J5. Set TAP COARSE TUNE-FINE TUNE switch S4 and COIL COARSE TUNE-FINE TUNE switch S3 to COARSE TUNE position. (Coarse tune on one side of neutral will put voltages on pins 21 and 22. On the other side of neutral, pins 20 and 23.) Set multimeter to a-c scale and connect one terminal to CAPACITOR run light and the other terminal to pins 20, 21, 22, and 23 of J5 in progressive order.	Multimeter should read 115 volts ac at each pin on J5 (pins 20, 21, 22, and 23).	If indication is normal, proceed with step 7. If no voltage is present on pins 20, 21, 22, and 23 of J5, check for 115 volts ac at common of switch S3. If there is no voltage on common of switch S3, check terminal 4 of relay K2. If there is voltage at this point, replace relay K2.
7	Figures 5-1, 5-2, and 5-3. Same as in step 6.	Same as step 6.	Multimeter should read 115 volts ac in pulses at each pin on J5 (pins 20, 21, 22, and 23).	If indication is normal, proceed with step 8. If no voltage pulses are present on pins 20, 21, 22, and 23 of J5, check capacitor C3 and relays K1 and K2. Replace if necessary.
8	Figures 5-1, 5-2, and (Cont)	Set twelve-position CAPACITOR (Cont)		If indication is normal, proceed with (Cont)

TABLE 5-2. COUPLER CONTROL C-2698/SRA-22 TROUBLE-SHOOTING CHART (Cont)

STEP	TEST POINT	PRELIMINARY ACTION	NORMAL INDICATION	NEXT STEP
8 (Cont)	(Cont) 5-3. CAPACITOR run light and pins 1, 2, 3, and 4 on J5.	(Cont) switch S2 to position 1. Connect one terminal of multimeter to CAPACITOR run light and the other terminal to pins 1, 2, 3, and 4 as follows: S2 in position 1 S2 in position 2 S2 in position 3 S2 in position 4 S2 in position 5 S2 in position 6 S2 in position 7 S2 in position 8 S2 in position 9 S2 in position 10 S2 in position 11 S2 in position 12	 115 volts on pins 2 and 3 115 volts on pins 1 and 2 115 volts on pins 1 and 4 115 volts on pin 3 115 volts on pin 2 115 volts on pin 1 115 volts on pin 4 115 volts on pins 3 and 4 115 volts on pins 2, 3, and 4 115 volts on pins 1, 2, and 3 115 volts on pins 1, 2, and 4 115 volts on pins 1, 3, and 4	(Cont) step 9. If voltage is not present on any one of the pins, check switch S2 contacts. Replace switch if necessary.
9	Figures 5-1, 5-2, and 5-4.	With the transmitter unkeyed, remove the coaxial cable which connects Coupler Control C-2698/SRA-22 to Antenna Coupler CU-714/SRA-22. Leave the TUNE-OPERATE switch S6 in the OPERATE position. Set REFLECTED-FORWARD switch S7 to 100 REFLECTED. Slowly increase the RF EXCITER drive until system is (Cont)	Relay K1 in vswr protector circuit should energize. CAPACITOR run light DS3 should blink. System should unkey when reflected power, indicated on r-f wattmeter M3, exceeds approximately 30 watts.	If indication is normal, proceed with step 10. (Except for CAPACITOR run light DS3, components indicated below are located in the vswr protector circuit.) If relay K1 is not energized, check for +28 volts dc between contacts 5 and 1 of relay K1. Check for -12 volts dc peak-to-peak across CR2, and -0.5 volt dc peak-to-peak across R4 and and RT1. If (Cont)

TABLE 5-2. COUPLER CONTROL C-2698/SRA-22 TROUBLE-SHOOTING CHART (Cont)

STEP	TEST POINT	PRELIMINARY ACTION	NORMAL INDICATION	NEXT STEP
9 (Cont)		(Cont) automatically unkeyed.		(Cont) voltages are normal, replace R2, R3, and CR4. If relay K1 is energized and CAPACITOR run light DS3 does not blink, check for 150 volts dc across C2. If voltage is normal, check contacts 4, 6, and 7 of relay K1. Replace relay K1 if necessary. If relay K1 is energized and system does not unkey, check contacts 2, 3, and 8 of relay K1. If relay K1 is energized when the reflected power is less than approximately 30 watts, check for -12 volts dc peak-to-peak across CR2, and -0.5 volt dc peak-to-peak across R4 and RT1. If voltages are normal, replace R2, R3, and CR4.
10	Figures 5-1, 5-2, 5-3, and 5-4.	Refer to the operator's section of the Technical Manual for Radio Set AN/URC-32 for the tuning procedure of the radio set and paragraph 3-2b of this manual for sequence of operation. Set LOAD-ANT switch S1 to LOAD position (feeds an external dummy load). Set REFLECTED-FORWARD switch S7 to 1000 REFLECTED. Key radio set, and tune r-f amplifier.	Meter M3 should read a high forward power with REFLECTED-FORWARD switch S7 set to 1000 FORWARD and a low reflected power when REFLECTED-FORWARD switch S7 is set in 100 REFLECTED position.	If indication is normal, proceed with step 11. If meter M3 gives no indication, de-energize radio set, and check REFLECTED-FORWARD switch S7. If switch S7 is not defective, remove coupler unit, check components, and replace defective one.

TABLE 5-2. COUPLER CONTROL C-2698/SRA-22 TROUBLE-SHOOTING CHART (Cont)

STEP	TEST POINT	PRELIMINARY ACTION	NORMAL INDICATION	NEXT STEP
11	Figures 5-1, 5-2, 5-3, and and 5-4.	Repeat step 9.	Same as in step 9.	If no output is indicated on meter M3, check transfer relay K3. This relay should become energized when the radio set is keyed. Replace transfer relay if necessary.

NOTE

Before proceeding with the antenna coupler trouble-shooting procedure, the coupler control should be operating normally. Connect plug P5 into connector J5, and proceed as follows.

TABLE 5-3. ANTENNA COUPLER CU-714/SRA-22 TROUBLE-SHOOTING CHART

STEP	TEST POINT	PRELIMINARY ACTION	NORMAL INDICATION	NEXT STEP
1	Figure 5-5.	Loosen the twelve screws mounting the antenna coupler to its case. Slide the antenna coupler from its case. Operate twelve-position CAPACITOR switch S2 on coupler control, one step at a time.	Capacitor motor B2 in antenna coupler should operate the vacuum capacitor at each step of twelve-position CAPACITOR switch S2.	If indication is normal, proceed with step 2. If motor B2 will not run, check for 115 volts ac on terminals 3 or 4. If there is no voltage at motor B2, check switches S10 and S11. If there is voltage on motor B2 and it will not turn, check capacitor C5. Check the gear train to determine if it is binding.
2	Figure 5-5.	Operate COIL COARSE TUNE-FINE TUNE switch S3 in COARSE TUNE position.	Coil motor B3 should operate the coil drums.	If indication is normal, proceed with step 3. If motor B3 will not run, check for 115 volts ac on terminals 3 or 4. If there is no voltage at motor B3, check (Cont)

TABLE 5-3. ANTENNA COUPLER CU-714/SRA-22 TROUBLE-SHOOTING CHART (Cont)

STEP	TEST POINT	PRELIMINARY ACTION	NORMAL INDICATION	NEXT STEP
2 (Cont)				(Cont) cable from coupler control and wiring. If there is voltage on motor B3 and it will not turn, check the gear train and the mounting of the coil drums for binding.
3	Figure 5-5.	Operate TAP COARSE TUNE-FINE TUNE switch S4 in COARSE TUNE position.	Tap motor B4 should operate the tap ring on the coil.	If motor B4 will not run, check for 115 volts ac on terminals 3 or 4. If there is no voltage at motor B4, check cable from coupler control and wiring. If there is voltage on motor B4 and it will not turn, check the gear train for binding.

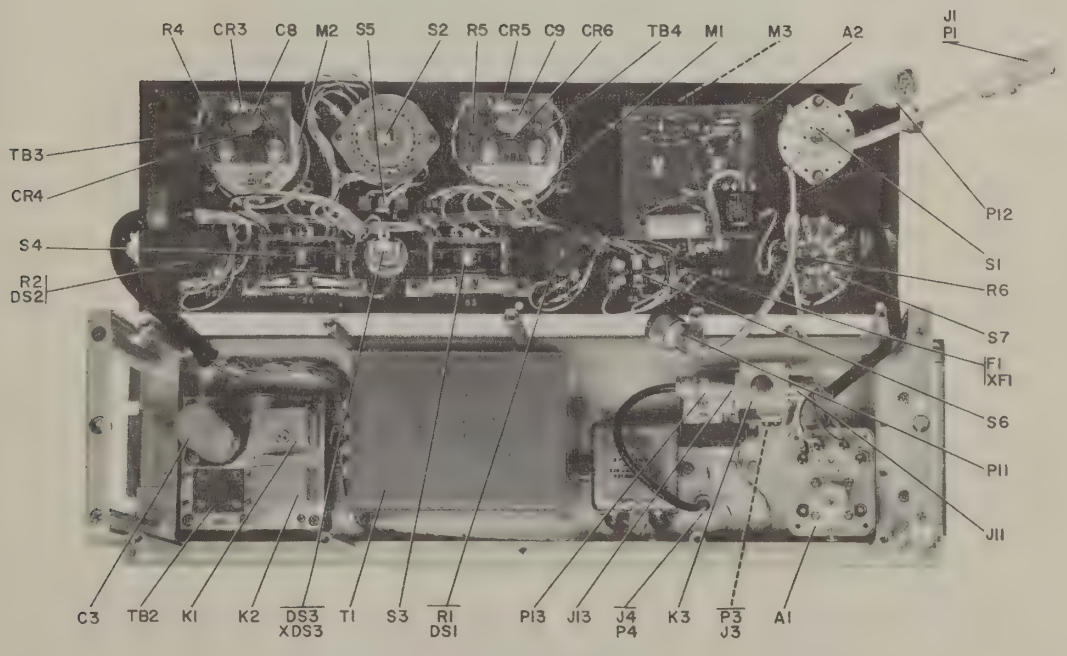


Figure 5-1. Coupler Control C-2698/SRA-22, Front Panel Removed

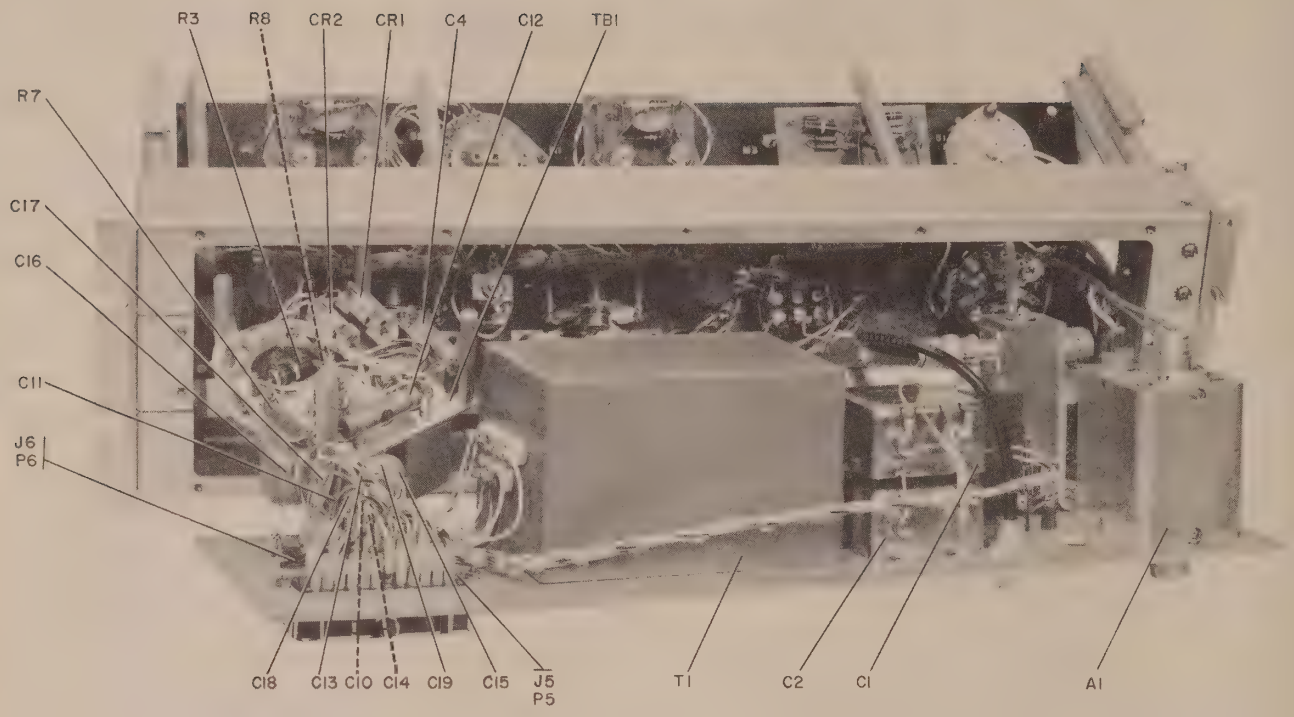


Figure 5-2. Coupler Control C-2698/SRA-22, Rear Panel Removed

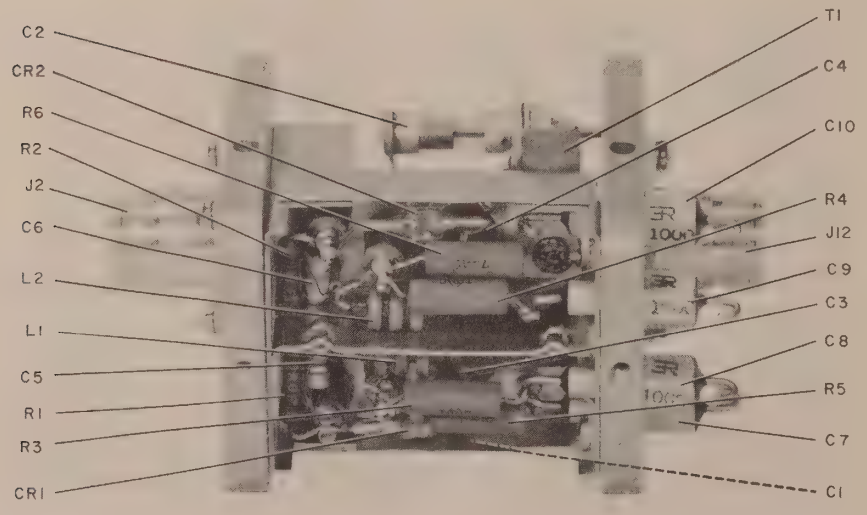


Figure 5-3. Coupler Control C-2698/SRA-22,
Directional Coupler

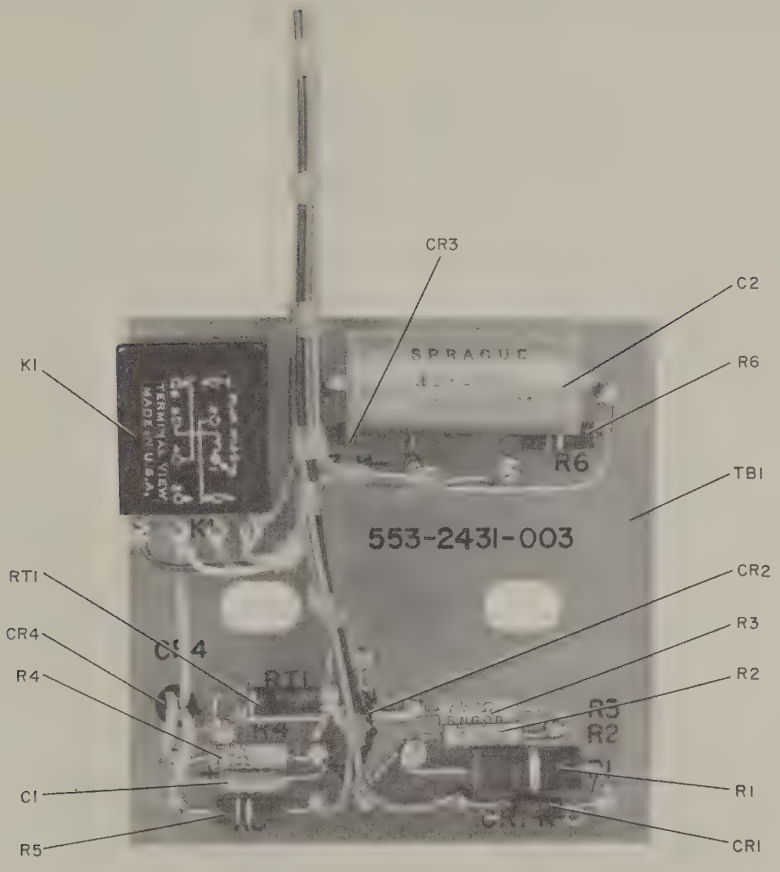


Figure 5-4. Coupler Control C-2698/SRA-22, VSWR Protector

d. VOLTAGE AND RESISTANCE MEASUREMENTS. - When trouble has been isolated to a functional section (Antenna Coupler CU-714/SRA-22 or Coupler Control C-2698/SRA-22), conventional trouble-shooting procedures can be used to locate a defective part with the aid of schematic diagrams (figures 5-16 and 5-17) and the voltage and resistance measurements of tables 5-4 and 5-5. All measurements are taken from terminal to 115-volt 60-cycle common (pin 24 on connector J5) except the voltages measured across potentiometers R1 and R2, R6 and R7. Across R1 and R6 potentiometer, the negative terminal of the multimeter is connected to CCW pin on potentiometer, and across potentiometer R2 and R7, the negative terminal of the multimeter is connected to CW pin on potentiometer. All measurements should be made with Multimeter AN/PSM-4 or equivalent and will be nominal values. All voltage readings are taken with Radio Set AN/URC-32 low-voltage power supply energized which provides 115 volts ac to Coupler Control C-2698/SRA-22. Disconnect plug P5 from connector J5. All resistance measurements are taken with power off.

TABLE 5-4. VOLTAGE AND RESISTANCE MEASUREMENTS OF COUPLER CONTROL C-2698/SRA-22

*CONTROL SETTINGS	TERMINAL	V DC	V AC	OHMS
Any position	R1-CW (to ground)	+18 - +24	---	200
	R1-CW R1-CCW	+9 - +12	---	100
Any position	R2-CCW R2-CW	+9 - +12	---	100
Switch S2 to position 1	S2-8 S2-9	---	115	---
Switch S2 to position 2	S2-9 S2-10	---	115	---
Switch S2 to position 3	S2-7 S2-8	---	115	---
Switch S2 to position 4	S2-8	---	115	---
Switch S2 to position 5	S2-9	---	115	---
Switch S2 to position 6	S2-10	---	115	---
Switch S2 to position 7	S2-7	---	115	---
Switch S2 to position 8	S2-7	---	115	---

TABLE 5-4. VOLTAGE AND RESISTANCE MEASUREMENTS OF COUPLER CONTROL C-2698/SRA-22 (Cont)

*CONTROL SETTINGS	TERMINAL	V DC	V AC	OHMS
Switch S2 to position 9	S2-7 S2-8 S2-9	---	115	---
Switch S2 to position 10	S2-8 S2-9 S2-10	---	115	---
Switch S2 to position 11	S2-7 S2-9 S2-10	---	115	---
Switch S2 to position 12	S2-7 S2-8 S2-10	---	115	---
---	J5-8	---	115	
---	K3-2 (to ground)	+28	---	---
Switch S6 in OPERATE position	K3-5 (to ground)	+28	---	---
---	K3-1 (to ground)	+28	---	---
---	**Across C2	+150	---	---
---	**K1-2 to K1-8	---	---	0
---	**Cathode of CR1 (to ground)	---	32	---
---	**Anode of CR2 (to ground)	***-12 (peak-to-peak)	---	---

*Controls not listed can be in any position.
**Located in vswr protector (subassembly A2).
***Measure with oscilloscope.

NOTE

Connect plug P5 to connector J5 on the coupler control.

TABLE 5-5. VOLTAGE AND RESISTANCE MEASUREMENTS OF ANTENNA COUPLER CU-714/SRA-22

TERMINAL	V DC	V AC	OHMS
R6-CW R6-CCW	+9 - +12	---	50
R7-CW R7-CCW	+9 - +12	---	50
C6 to standoff from blower		When transmitter is keyed	

5-5. TYPICAL TROUBLES.

Table 5-6 contains possible troubles of Antenna Coupler Group AN/SRA-22. Correcting troubles consists of replacing defective components and realigning gear trains and potentiometers as applicable. The Nature of Trouble column suggests the required corrective action. In some cases, disassembly and reassembly procedures are necessary to permit repair.

TABLE 5-6. POSSIBLE TROUBLES OF ANTENNA COUPLER GROUP AN/SRA-22

TROUBLE	NATURE OF TROUBLE	SYMPTOMS
Vacuum capacitor does not home.	Excessive mechanical friction in gear train; open or shorted contacts on switch S9, S10, or S11; open motor leads to B2; open or shorted phasing capacitor C5; or motor B2 is malfunctioning.	Capacitor will not run or binds at certain points.
Coil does not home.	Excessive mechanical friction in gear train; ceramic drum or aluminum shorting drum open or shorted. Contacts on switch S3 (in coupler control) open; motor leads to motor B3 open or shorted. Phasing capacitor C1 shorted or open. Motor B3 malfunctioning.	Ceramic and aluminum drums will not run or binds at certain points.
Tap does not home.	Excessive mechanical friction in gear train or tap; open motor leads to motor B4. Open or shorted (Cont)	Gear train will not run or binds at certain points.

TABLE 5-6. POSSIBLE TROUBLES OF ANTENNA COUPLER GROUP AN/SRA-22 (Cont)

TROUBLE	NATURE OF TROUBLE	SYMPTOMS
	(Cont) phasing capacitor C1 or motor B4 is malfunctioning.	
Coil, tap, and capacitor homes properly, but no r-f signal from Radio Set AN/URC-32 when the radio set is keyed.	Open relay K3 coil or no voltage to relay.	Transfer relay K3 not operating.
Coupler control is tuned with TUNE-OPERATE switch in TUNE position, but when TUNE-OPERATE switch is in OPERATE position, vswr protector circuit is actuated.	Arcing present in Antenna Coupler CU-714/SRA-22 coaxial cable or plugs defective. Antenna insulator dirty or defective.	Vswr protector circuit is actuated when TUNE-OPERATE switch is in OPERATE position.

5-6. ALIGNMENT.

The alignment of the TAP and COIL potentiometers are the only alignments necessary in the coupler control unit.

a. TEST EQUIPMENT AND SPECIAL TOOLS. - There are no special tools required for the tuning and adjustments covered in this section.

b. CONTROL SETTINGS. - All controls on the front panel of the coupler control may be left in any position except the COIL COARSE TUNE-FINE TUNE and TAP COARSE TUNE-FINE TUNE switches, S3 and S4. These two switches should be in neutral position (levers straight out).

c. POTENTIOMETER ALIGNMENT.

(1) Remove plug P5 from connector J5 on the coupler control.

(2) Run the COIL and TAP potentiometers to their counterclockwise end stop. Set the COIL and TAP dials to zero being careful not to turn the shaft of the potentiometers. Tighten the setscrews. The potentiometers are now adjusted.

(3) Adjust the COIL dial and the TAP dial to 100.

(4) Connect plug P5 to connector J5. (This connects the coupler control to the antenna coupler.)

(5) Loosen the 12 screws that mount the antenna coupler in its case. Remove plug P9 (located at the front of the antenna coupler) from connector J9. Remove the antenna coupler from the case by pulling it slowly straight out.

(6) Run the coil by hand to its minimum stop.

(7) Back the coil off two turns, place a small mark on the coil form with a marking pencil, and use a pointer to determine two turns as close as possible.

(8) Run the top by hand to its maximum stop (away from where the tape leaves the ceramic drum and winds on the metal drum).

NOTE

To operate controls of Coupler Control C-2698/SRA-22, it is necessary to hold the TUNE-OPERATE switch in the TUNE position.

(9) Loosen the coupling on the potentiometer R6 shaft, and adjust the shaft until the COIL meter on the front panel of the coupler control reads zero center. Tighten the coupling control.

(10) Loosen the coupling on the potentiometer R7 shaft, and adjust the shaft until the TAP meter on the front panel of the coupler control reads zero center. Tighten the coupling control.

(11) Plug the antenna coupler into its case. Make sure that blower plug P9 is connected to connector J9.

d. STOP ADJUSTMENTS ON ANTENNA COUPLER CU-714/SRA-22.

(1) COIL STOP ADJUSTMENT. - Refer to figure 5-5, and proceed as follows:

(a) Loosen setscrews (260) on coil stop actuator (261).

(b) Adjust stop arm (282) so that the stop pin on stop assembly (103) misses the stop on both sides (see figure 5-6).

(c) Wind the silver tape onto the ceramic drum leaving approximately one-half turn of tape on the metal drum.

(d) Actuate stop arm (282), and seat the stop pin in beryllium copper stop (284).

(e) Loosen setscrews (257) on coil stop cam, and adjust cam so that it actuates coil stop actuator (261) (see figure 5-7). Tighten setscrews.

(f) Adjust the drum assemblies until exactly two turns of silver tape are on the ceramic drum, and the rest of the tape is on the metal drum.

(g) Attach the control cable from the remote control to the antenna coupler.

(h) Set COIL dial to 100 (see figure 5-8), and hold TUNE-OPERATE switch S6 in the TUNE position. Adjust R6 until the coil meter needle indicates 0 (center of scale).

(i) Make a trial run to ensure proper operation of the stop.

(2) TAP STOP ADJUSTMENT. - Refer to figure 5-9, and proceed as follows:

(a) Run approximately ten turns of tape on the ceramic drum.

(b) Run the tap assembly to the point where the tape leaves the ceramic drum to go on the metal drum (see figure 5-9). This is the point where the tap stop should operate.

NOTE

If the tap stop does not engage before this point is reached, the operating cam is not properly adjusted. Also, if it engages before this point is reached, the operating cam is not properly adjusted.

(3) TAP STOP ACTUATING TOO EARLY. - If the tap actuates too early, refer to figure 5-5, and proceed as follows:

(a) Loosen setscrews (355) on gear (359).

(b) Back off the tap assembly approximately two turns.

(c) Pull shaft (256) out of gear (359) being careful not to rotate gear (359).

NOTE

Before adjusting the cam gear, always rotate the tap assembly from where it was stopped. This will prevent the spring tension from throwing cam gear (359).

(d) Disengage gear (359) from the gear train, and rotate it one tooth counterclockwise (looking down at the antenna coupler in a vertical position with it resting on the front casting).

(e) Reinsert shaft (356), and tighten setscrews (355) in gear (359).

(4) TAP STOP ACTUATING TOO LATE. - If the tap is actuated too late, refer to figure 5-5, and proceed as follows:

(a) Repeat paragraphs (3)(a), (b), and (c) above.

(b) Disengage gear (359) from the gear train, and rotate gears, one tooth at a time, in the clockwise direction (looking down at the antenna coupler in a vertical position with it resting on the front casting) until the tap stop (see paragraph (2)(a), and (b) above) is properly set.

(c) Reinsert shaft (356) each time, and tighten setscrews (355) in gear (359).

(d) Loosen setscrews (84) on collar (85).

(e) Turn the drum assemblies until exactly two turns of silver tape are on the ceramic drum.

(f) Turn the tap assembly until the contacts are as close as possible to where the silver tape enters the hole on the ceramic drum.

(g) Attach the control cable from the remote control to the antenna coupler.

(h) Set TAP dial to 100, and hold TUNE-OPERATE switch S6 in the TUNE position. Adjust R7 until the tap meter needle is on 0 (center of scale).

(i) Make a trial run to ensure proper operation of the stop.

	COLLINS PART NO.
	43-0309-00
	42-0062-00
	42-0186-00
	44-7317-002
	42-0045-00
	42-0044-00
	42-0044-00
	12-0031-00
	43-9955-002
	44-7382-004
	42-0142-00
	42-0132-00
	35-0019-00
	42-0132-00
	44-0036-002
	42-0045-00
	44-0003-002

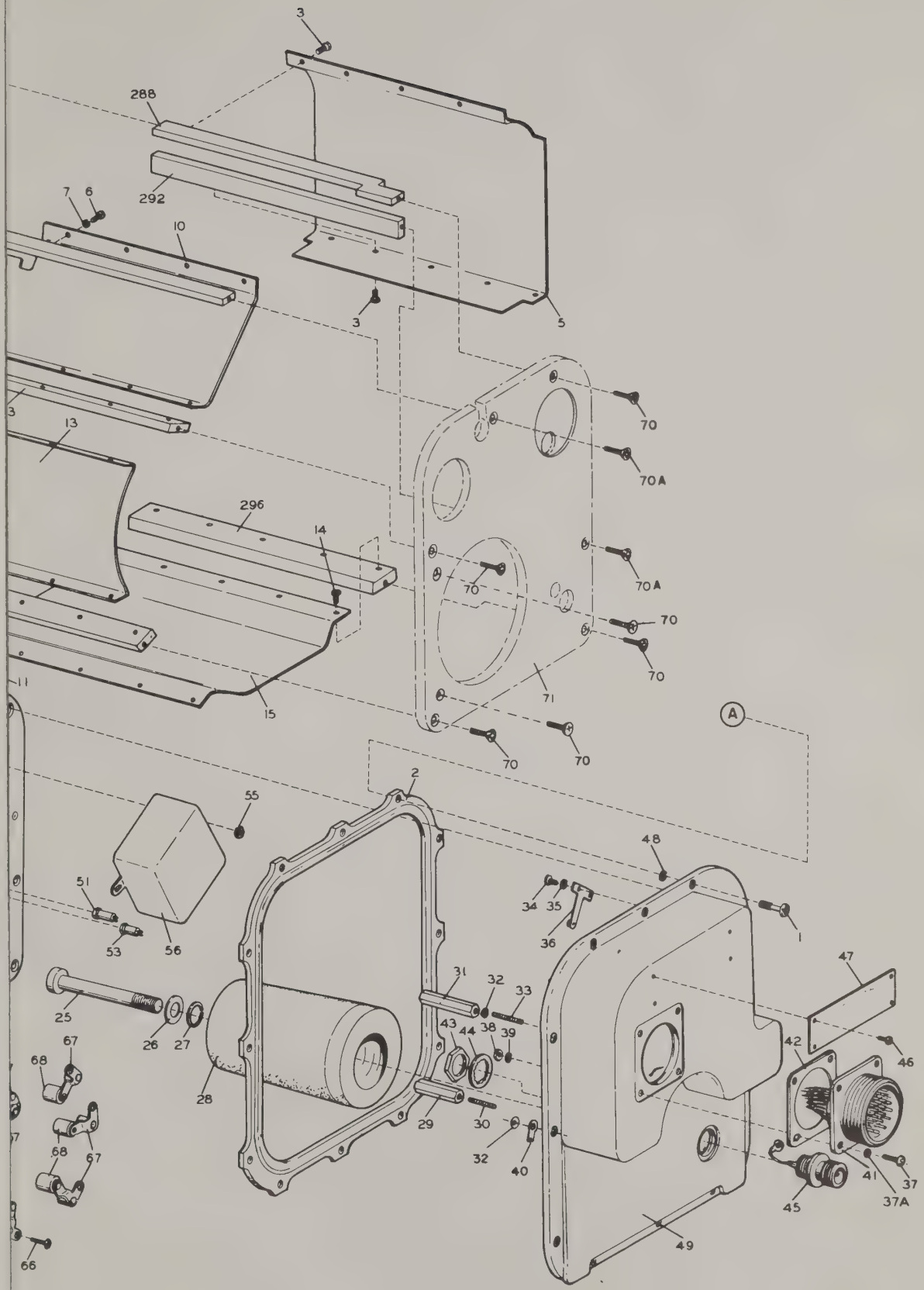


Figure 5-5. Antenna Coupler CU-714/SRA-22, Exploded View
(Sheet 2 of 2)

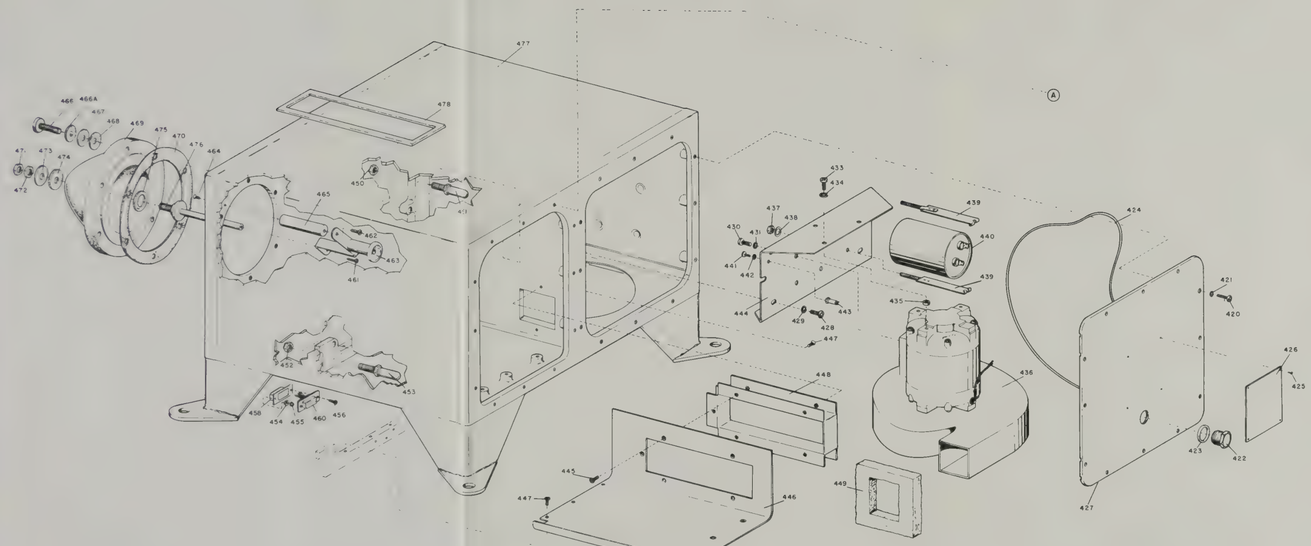


Figure 5-5. Antenna Coupler CU-714/SRA-22, Exploded View (Sheet 1 of 2)

INDEX NO.	ITEM	COLLINS PART NO.
1	Screw H59	
2	Gasket seal MP53	
3	Screw	343-0123-00
4	Not Used	
5	Shroud H1	
6	Screw	343-0123-00
7	Lock washer	310-0320-00
8	Screw	343-0128-00
9	Nut	313-0037-00
10	Shroud H2	
11	Screw	343-0128-00
12	Nut	313-0037-00
13	Shroud H3	
14	Screw	343-0123-00
15	Shroud H4	
16	Screw	343-0138-00
17	Cover H5	
18	Cover H6	
19	Screw	342-0081-00
20	Not Used	
21	Not Used	
22	Not Used	
23	Not Used	
24	Not Used	
25	Bolt H58	
26	Washer	310-0062-00
27	Lock washer	310-0402-00
28	Slug H7	
29	Standoff H8	
30	Stud	312-0097-00
31	Standoff H9 S/AH8	
32	Lock washer	310-0283-00
33	Stud	312-0097-00
34	Screw	343-0279-00
35	Lock washer	310-0074-00
36	Ground contact E1	
37	Screw	343-0171-00
37A	Washer	310-0441-00
38	Nut	313-0045-00
39	Lock washer	310-0282-00
40	Solder lug	304-5000-00
41	Connector J7	
42	Gasket MP54	
43	Hex nut	J8
44	Lock washer	J8
45	Connector	J8
46	Screw	343-0123-00
47	Nomenclature plate	544-5187-002
48	Lock washer	340-0742-00
49	Front casting MP108	
50	Screw	343-0287-00
51	Terminal	306-0234-00
52	Screw	343-0287-00
53	Terminal	306-0234-00
54	Screw	342-0169-00
55	Nut	313-0053-00
56	Capacitor C5	
57	Screw	343-0284-00
58	Switch S8	
59	Screw	342-0043-00
60	Screw	343-0285-00
61	Lock washer	310-0396-00
62	Solder lug	304-0140-00
63	Center tap mount MP10	
64	Ball bearing MP55	
65	Ball bearing MP56	
66	Screw	343-0167-00
67	Roller arm MP57	
68	Roller MP58	
69	Retainer ring	340-0090-00
70	Screw	342-0079-00
71	Front plate MP110	
72	Tube insulator	544-0047-002
73	Setscrews	335-0019-00
74	Coupler MP59	
75	Roll pin	311-0420-00
76	Screw	347-0098-00
77	Not Used	
78	Switch S10	
79	Spacer H10	
80	Roll pin	311-0420-00
81	Tap drive pinion MP50	
82	Shaft MP51	
83	Screw	343-0285-00
84	Setscrews	335-0019-00
85	Coupler MP9	
86	Nut	313-0051-00
87	Bracket	544-7330-002
88	Screw	343-0286-00
89	Potentiometer locks H11	
90	Potentiometer R7	
91	Screw	343-0297-00
92	Lock washer	310-0075-00
93	Contacts E2	
94	Retainer ring	340-0043-00
95	Spacers H12	
96	Spacers H13	
97	Spring MP60	
98	Spacer H14	
99	Center tap hub MP111	
100	Roll pin	311-0420-00
101	Screw	342-0044-00
102	L-v drum driven gear MP61	
103	Stop assembly MP112	
104	Screw	343-0297-00
105	Screw	343-0297-00
106	Solder lug E3	
107	L-v drum MP49	
108	Sliding contact E4	
109	L-v drum end assembly MP113	
110	Screw	343-0284-00
111	Washer	310-0045-00
112	Nut	313-0051-00
113	Screw	343-0284-00
114	Washer	310-0045-00
115	Spring MP62	
116	Setscrew	335-0020-00
117	Flange coupler MP114	
118	L-v drum shaft MP63	
119	Oilite bearing MP64	
120	L-v drum end assembly MP115	
121	Screw	343-0300-00
122	Lock washer	310-0075-00
123	Washer	310-0053-00
124	Screw	343-0300-00
125	Lock washer	310-0075-00
126	Screw	343-0300-00
127	Lock washer	310-0075-00
128	Strip contact E5	
129	Strip contact E6	
130	Slip ring H15	
131	Spacer H16	
132	Spacer H17	
133	Spacer H18	
134	Spacer H19	
135	Roller MP116	
136	Screw	343-0284-00
137	Pin stop H20	
138	Roller shaft MP117	
139	Roller shaft MP118	
140	Roller shaft MP119	
141	Roller shaft MP120	
142	Gear MP46	
143	Solder lug	304-0202-00
144	Coil ribbon E7	
145	Screw	313-0051-00
146	Lock washer	373-3010-00
147	Solder lug	304-0202-00
148	Screw	313-0051-00
149	Flange coupler MP65	
150	Roll pin	311-0420-00
151	H-v output shaft MP66	
152	Not Used	
153	H-v contact	506-0993-002
154	Nut	313-0051-00
155	Washer	310-0054-00
156	Washer	302-0024-00
157	Screw	343-0280-00
158	Gear MP48	544-0623-00
159	Race, coil support MP121	
159A	Spring, coil stop MP124	
160	H-v drum L1	
161	Screw	343-0327-00
162	Lock washer	310-0078-00
163	Solder lug	304-0140-00
164	Screw	347-0169-00
165	Lock washer	310-0078-00
166	H-v spark gap contact E8	
167	Solder lug	304-0140-00
168	Screw	343-0285-00
169	Washer	310-0054-00
170	Gear MP3	
171	Capacitor C7	
172	Screw	347-0169-00
173	Nut	313-0050-00
173A	Lock washer	310-0074-00
174	H-v contact	544-2666-002
175	Screw	342-0142-00
176	Capacitor plate	544-2671-002
177	Screw	347-0103-00
178	H-v collar	543-9994-002
179	Gear (part of assem of C7) MP67	
180	Capacitor lead screw	544-6183-002
181	H-v strip E9	
182	Screw	343-0290-00
183	Retainer ring	340-0013-00
184	Not Used	
185	Spacer H22	
186	Plug P10	
187	H-v output plate	544-0097-002
188	Screw	342-0157-00
189	H-v post H23	
190	Nut	333-0327-00
191	Spacer H24	
192	Switch S11	
193	Spacer H25	
194	Not Used	
195	Stud H27	
196	Nut H28	
197	Lock washer	310-0076-00
198	Washer	310-0054-00
199	Washer H29	
199A	Spacer H30	
200	Screw	
201	Lock washer	310-0074-00
202	Solder lug	304-0331-00
203	Washer	310-0053-00
204	Washer H39	
205	Washer H40	
206	Retainer ring	340-0254-00
207	Washer H31	
208	Washer H32	
209	Washer H33	
210	Nut H34	
211	Lock washer	310-0076-00
212	Washer	310-0054-00
213	Washer H35	
214	Stud	312-0063-00
215	Solder lug	304-0331-00
216	H-v contact E10	
217	Spacer H36	
218	Screw	343-0301-00
219	Lock washer	310-0074-00
220	Solder lug	304-0331-00
221	Washer	310-0053-00
222	Washer H37	
223	Contact button E11	
224	Screw	343-0301-00
225	Lock washer	310-0074-00
226	Washer	310-0053-00
227	Washer	543-9648-003
228	Terminal	304-0331-00
229	Strip contact E12	
230	Spacer	543-9848-002
231	H-v plate	544-7343-002
232	Standoff H38	
233	Standoff	543-9986-002
234	Stud	312-0020-00
235	Stud	312-0020-00
236	Stud	312-0020-00
237	Setscrew	335-0019-00
238	Roll pin	311-0420-00
239	Screw	343-0299-00
240	H-v rotor collar MP125	
241	Contact E13	
242	H-v rotor strip E14	
243	Nut H41	
244	Screw	347-0089-00
245	H-v rotor MP126	
246	Setscrews	335-0019-00
247	Screw	343-0217-00
248	Screw	343-0283-00
249	Lockwasher	310-0396-00
250	Nut	313-0051-00
251	Lock washer	310-0396-00
252	Screw	343-0286-00
253	Potentiometer locks	543-6951-002
254	Coupler MP8	
255	Potentiometer R6	
256	R6 mounting bracket	544-7329-002
257	Setscrew	335-0019-00
258	Coil stop cam MP127	
259	Spring MP68	
260	Setscrew	335-0019-00
261	Coil stop MP128	
262	Screw	343-0286-00
263	Lock washer	310-0396-00
264	Washer	310-0054-00
265	H-v spark gap contact E16	
266	Nut	313-0050-00
267	Lock washer	310-0074-00
268	Screw	
269	Plug P9	
269A	Clamp	
270	Screw	
271	Screw	
272	Not Used	
273	Not Used	
274	Bracket	544-7339-002
275	Screw	343-0285-00
276	Washer	
277	Gear MP2	
278	Screw	
279	Washer	
280	Gear MP29	
281	Retainer ring	
282	Coil stop assembly MP123	
283	Deleted	
283A	Deleted	
284	Deleted	
285	Screw	343-0288-00
286	Center tap block	543-9969-002
287	Screw	343-0137-00
288	Spacer bar	544-7346-002
289	Not Used	
290	Spacer bar	544-7303-002
291	Not Used	
292	Spacer bar	544-7303-002
293	Spacer bar	544-7301-002
294	Screw	342-0182-00
295	Spacer bar	544-7302-002
296	Spacer bar	544-7300-002
297	Screw	343-0169-00
298	Screw	304-0317-00
299	Spacer H43	
300	Screw	343-0169-00
301	Screw	304-0317-00
302	Screw	342-0182-00
303	Spring MP69	
304	H-v rotor shaft MP12	
305	Screw	
306	Spacer H44	
307	Spacer H42	
308	Screw	342-0062-00
309	Screw H42	
310	Screw	342-0186-00
311	Guide pin block	544-7317-002
312	Screw	342-0
313	Coil motor bo	
314	Screw	342-0044-00
315	Tap motor B4	
316	Screw	342-0044-00
317	Capacitor motor B2	
318	Stud	312-0031-00
319	H-v post H4	
320	Capacitor drive pin stop	543-9953-002
321		
322		
323		
324		
325		
326		
327		
328		
329		
330		
331		
332		
333		
334		
335		
336		
337	Oilite bearing MP78	
338	Oilite bearing MP79	
339		
340		
341		
342		
343		
344		
345		
346	Secondary gear plate	544-7382-004
347	Screw	342-0142-00
348	Deleted	
349	Screw	342-0132-00
350	Screw	
351	Guard	
352	Base	
353	Gear MP2	
354	Gear MP5	
355	Setscrew	
356	Shaft MP28	
357	Screw	
358	Stop block	
359	Gear MP15	
360	Gear MP17	
361	Gear MP16	
362	Gear MP	
363	Gear MP6	
364	Screw	342-0045-00
365	Stop block	544-0003-002
366	Gear no. MP130	
367	Gear MP25	
368	Gear MP13	

PARTS IDENTIFICATION

INDEX NO.	ITEM	COLLINS PART NO.
369	Gear MP15	
370	Gear MP19	
371	Gear MP20	
372	Gear MP21	
373	Wick, oil	544-7353-002
374	Gear MP7	
375	Gear MP14	
376	Gear MP4	
377	Retainer ring	340-0254-00
378	Washer H49	
379	Washer S/A H49	
380	Washer S/A H49	
381	Gear MP11	
382	Gear MP10	
383	Gear MP22	
384	Roll pin	311-0419-00
385	Shaft H50	
386	Gear MP26	
387	Spring MP86	
388	Retainer ring	340-0021-00
389	Stop arm	544-0044-002
390	Screw	343-0285-00
391	Pin stop H51	
392	Ball bearing MP42	
393	Oilite bearing MP87	
394	Oilite bearing MP131	
395	Oilite bearing MP88	
396	Ball bearing MP38	
397	Ball bearing MP89	
398	Oilite bearing MP90	
399	Oilite bearing MP91	
400	Oilite bearing MP92	
401	Oilite bearing MP93	
402	Ball bearing MP36	
403	Oilite bearing MP94	
404	Ball bearing MP40	
405	Ball bearing MP32	
406	Ball bearing MP34	
407	Ball bearing MP45	
408	Oilite bearing MP95	
409	Not Used	
410	Oilite bearing MP97	
411	Oilite bearing MP98	
412	Oilite bearing MP99	
413	Oilite bearing MP100	
414	Screw	333-0285-00
415	Oilite bearing MP101	
416	Oilite bearing MP102	
417	Hub support	543-9907-002
418	Ball bearing MP44	
419	Primary gear plate	544-7387-005
420	Captive screw	333-0189-00
421	Lock washer	310-0072-00
422	Plug MP122	
423	Rubber gasket MP123	
424	Gasket MP52	
425	Screw	343-0122-00
426	Nomenclature plate	544-5186-002
427	Blower plate	544-7365-003
428	Screw	343-0186-00
429	Lock washer	310-0072-00
430	Screw	343-0207-00
431	Lock washer	310-0284-00
432	Not Used	
433	Screw	343-0207-00
434	Lock washer	310-0284-00
435	Spacer H52	
436	Blower B1	
437	Nut	313-0019-00
438	Lock washer	310-0284-00
439	Capacitor mounting bracket	139-0153-00
440	Capacitor C6	
441	Screw	343-0285-00
442	Lock washer	310-0396-00
443	Terminal	306-0234-00
444	Blower mounting bracket	544-7363-003
445	Screw	330-2290-00
446	Cradle	544-7360-00
447	Screw	343-0133-00
448	Plenum	544-7336-002
449	Blower gasket MP104	
450	Nut	333-0427-00
451	Guide pin H53	
452	Nut	333-0427-00
453	Guide pin S/A H53	
454	Nut	313-0037-00
455	Lock washer	310-0275-00
456	Screw	342-0133-00
457	Not Used	
458	Cover-connector	371-0144-00
459	Not Used	
460	Connector J9	
461	Screw	343-0285-00
462	Screw	343-0285-00
463	Connector J10	
464	Screw	342-0172-00
465	H-v post H54	
466	Screw	343-0269-00
466A	Washer H55	
467	Washer	310-0061-00
468	Washer	302-0038-00
469	H-v output insulator E17	
470	Gasket MP105	
471	Nut	313-0082-00
472	Nut	313-0082-00
473	Washer H56	
474	Washer H57	
475	Gasket MP106	
476	H-v output shaft MP103	
477	Case	544-7374-004
478	Felt gasket MP107	

NOTE

Do not use figure 5-5 for disassembly and reassembly. Refer to Overhaul and Repair Instructions and or Radio Set AN/URC-32 Navships 93285.61.

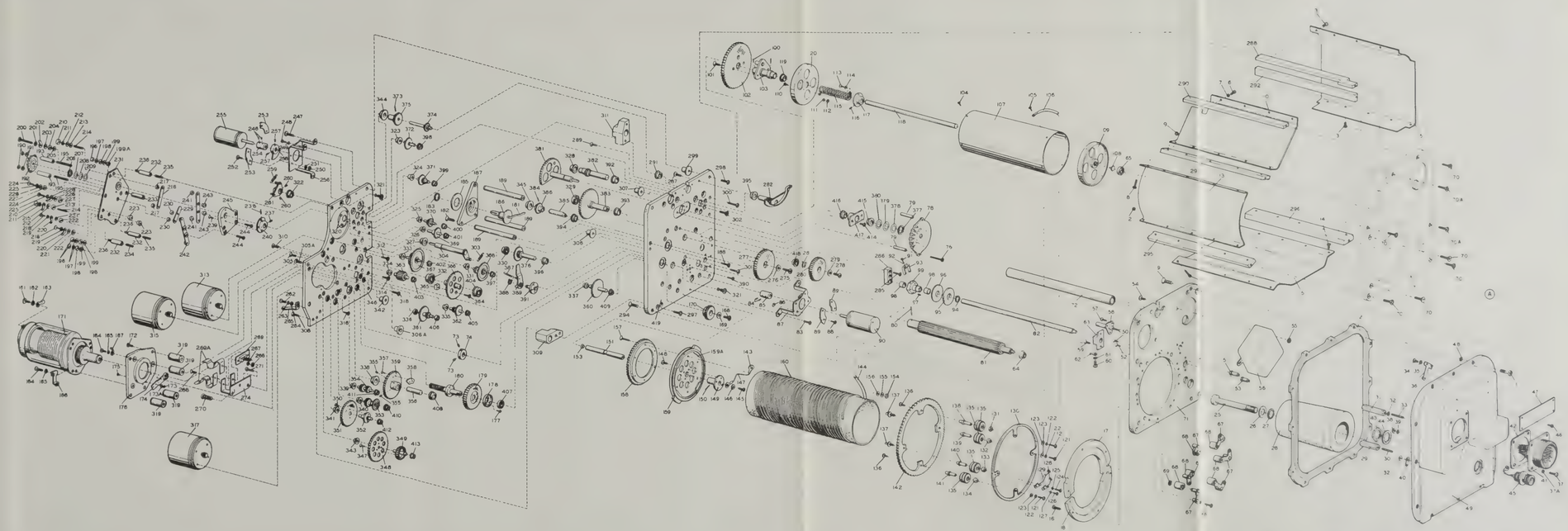


Figure 5-5. Antenna Coupler CU-714/SRA-22, Exploded View (Sheet 2 of 2)

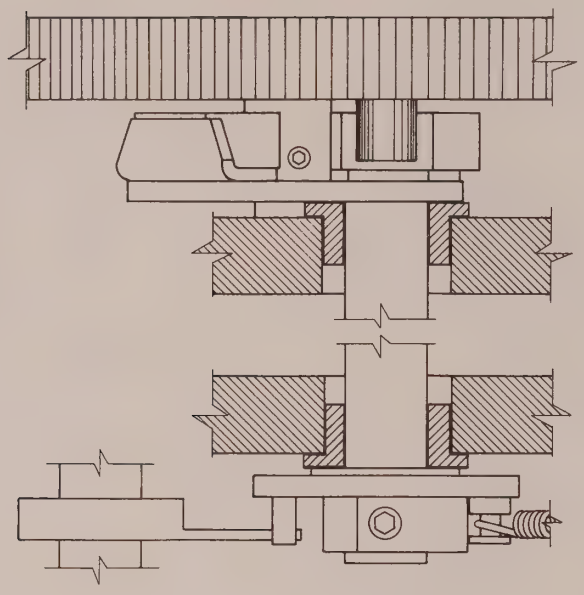


Figure 5-6. Coil Stop Arm Clearance

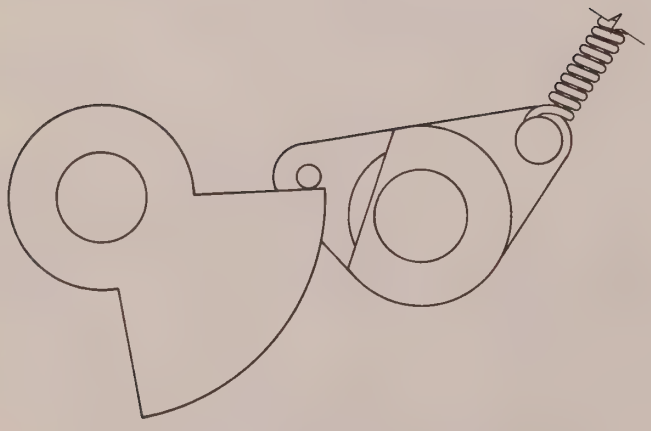


Figure 5-7. Coil Stop Cam Adjustments

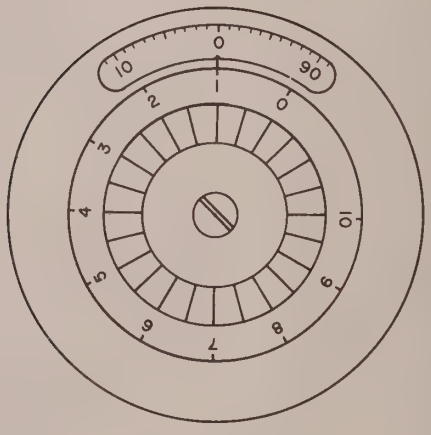


Figure 5-8. Dial Set to 100

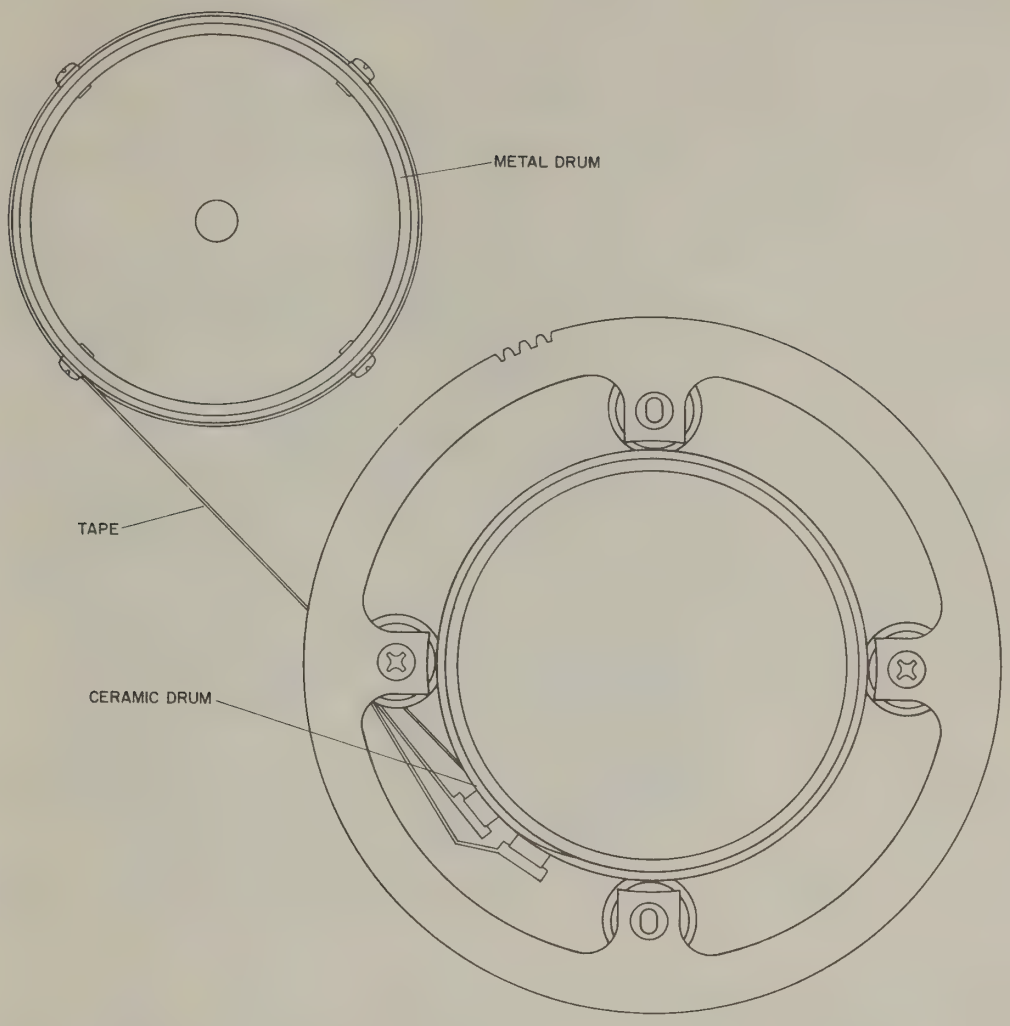


Figure 5-9. Ceramic and Metal Drum Assemblies

5-7. REMOVAL, ADJUSTMENT, REPAIR, AND REASSEMBLY OF PARTS AND SUBASSEMBLIES.

This section contains essential instructions for removal and disassembly of Coupler Control C-2698/SRA-22 and removal and disassembly of tap assembly and coil assembly of Antenna Coupler CU-714/SRA-22. For complete overhaul and disassembly procedures, refer to the Technical Manual of Overhaul Instructions of Antenna Coupler Group AN/SRA-22.

a. REMOVAL AND DISASSEMBLY OF COUPLER CONTROL C-2698/SRA-22.

(1) Radio Set AN/URC-32 should be de-energized.

(2) Release the thumb fasteners on the dust cover of the coupler control. Remove the dust cover.

(3) Remove the two screws that mount the right side of the coupler control to the rack. This will allow the unit to swing out.

(4) Remove coaxial plugs P1, P2, P3, P4, and plugs P5 and P6 from connectors on rear panel of unit.

(5) Grasp the unit firmly, and remove the two screws that mount the hinge to the rack. Carefully lay the unit on a bench.

(6) Remove coaxial plug P15 from directional coupler and plug P11 from relay K3.

(7) With a suitable wrench, remove the nut and lockwasher from connector J1.

(8) Remove the 14 screws and lock washers holding the rear panel to the chassis. This will allow the rear panel to swing down. Care should be taken not to damage the cable.

(9) Viewing the coupler control from the front, remove the nine screws that mount the front panel to the chassis. This will allow the panel to swing down. Care should be taken not to damage the cable.

(10) Repeat paragraph 5-7a in reverse order for reassembly of front and rear panels. With the front and rear panels removed, the disassembly or removal of components is obvious. Refer to figures 5-1, 5-2, 5-3, and 5-4 for location of components. The only adjustment necessary in this unit is that of potentiometers R1 and R2. Refer to paragraph 5-6 of this section for complete alignment procedure.

b. REMOVAL AND REPLACEMENT OF ANTENNA COUPLER CU-714/SRA-22 MOTORS, GEARS, LEAD SCREW ASSEMBLY, AND VARIABLE CAPACITOR C7.

NOTE

Perform steps (a), (b), and (c) of paragraph 5-7c(1) before removal of any of the assemblies below.

(1) COIL MOTOR B2. - To replace coil motor B2, refer to figure 5-5, and proceed as follows:

(a) Place coupler as shown in figure 5-10.

(b) Remove screws (300) from guide pin block (311) using special tool (see figure 5-11).

(c) Loosen screw (247) that mounts bracket (256).

(d) Loosen screw (270) that mounts plug bracket (274).

(e) Pull apart fiber primary gear plate (149) and metal secondary gear plate (346) for further clearance. Do not spread apart more than necessary (see figure 5-12 for primary gear plate).

(f) Remove screws (312) holding coil motor (313). Use special tool (see figure 5-11).

(g) Remove defective motor (313), and rest it on capacitor (171).

(h) Mount new motor (313).

(i) Remove wires from the defective motor, and connect them to the new motor.

(j) Tighten all hardware previously loosened.

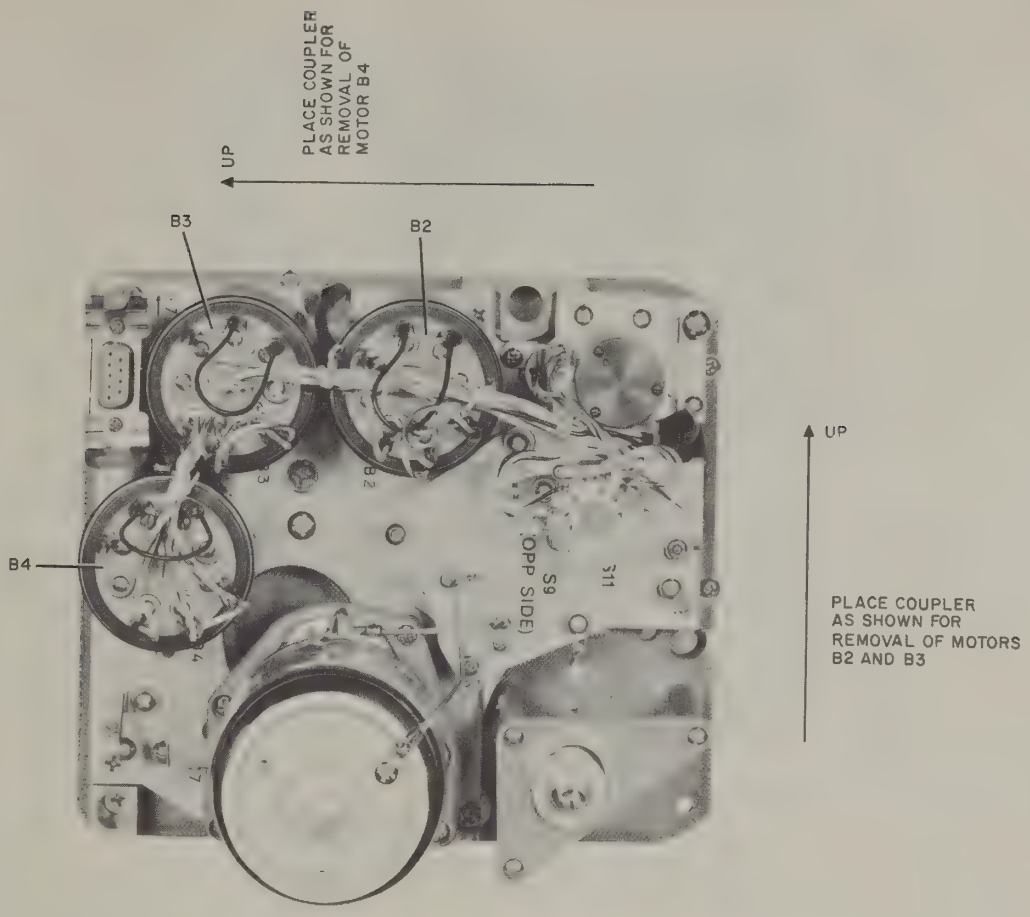


Figure 5-10. Antenna Coupler CU-714/SRA-22, End View

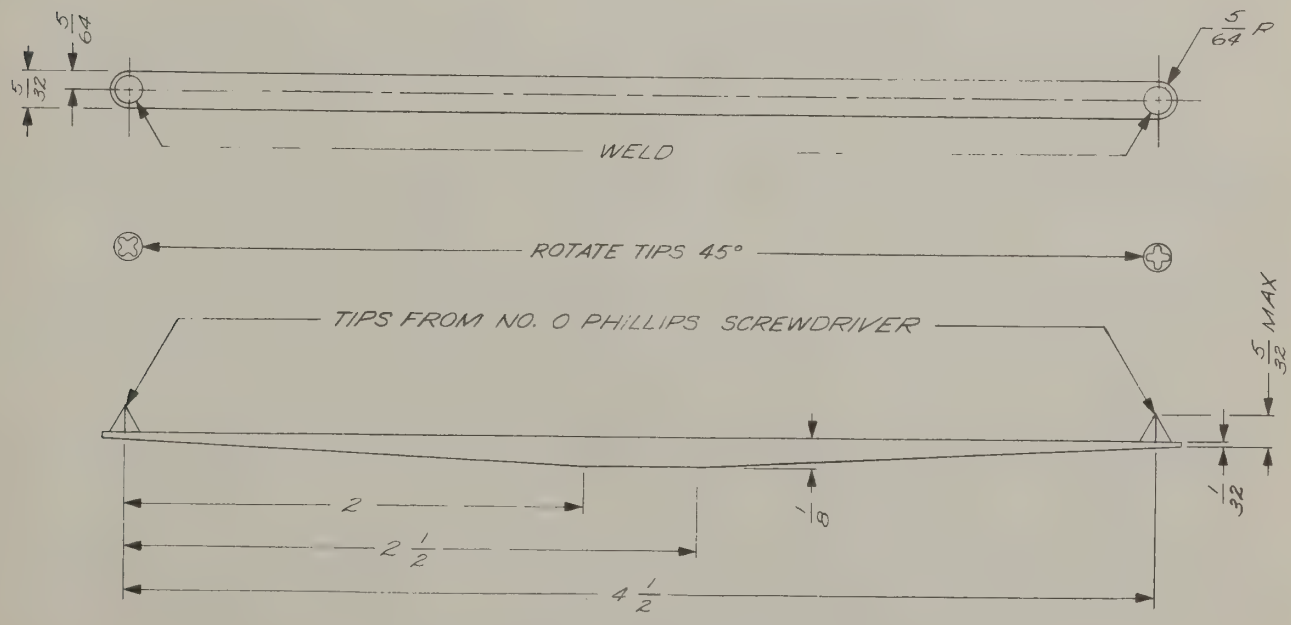


Figure 5-11. Tool 121-0228-00

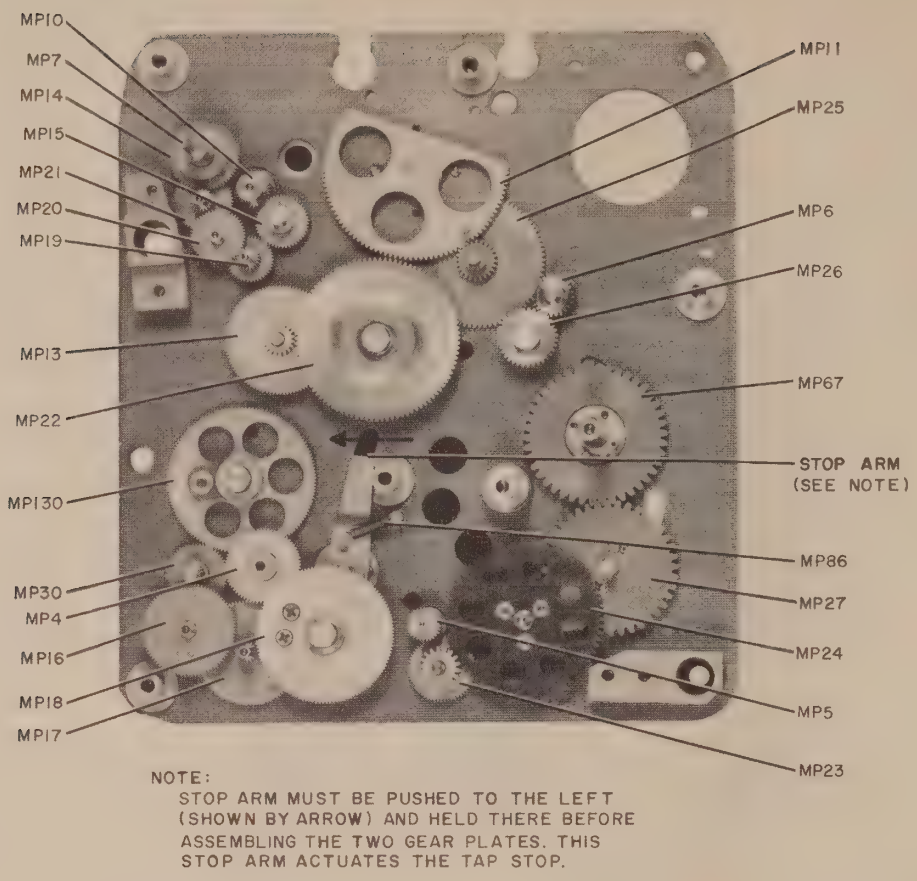


Figure 5-12. Primary Gear Plate

(2) TAP MOTOR B3. - To replace tap motor B3, refer to figure 5-5, and proceed as follows:

(a) Loosen screw (27) that mounts plug bracket (274).

(b) Remove screws (308) on metal secondary gear plate (346) that mounts guide pin block (309).

(c) Loosen setscrews (357 and 355) in hub of gear (359).

(d) Push shaft (356) from secondary gear plate (346) through primary gear plate (419).

(e) Lift out gear (359).

(f) Remove the four screws that mount motor (315).

(g) Remove the defective motor.

(h) Mount new motor (315) using the four screws that were used to mount the defective motor.

(i) Remove wires from the defective motor, and connect them to new motor (315).

(j) Tighten all hardware previously loosened.

(k) Reset tap stop by pushing gear plates (419 and 346) from post (342) and by disengaging gears (359 and 361) that are attached to shaft of potentiometer (90).

(l) Rotate pinion gear (81) and gear (359) until proper setting is found for the tap stop. See tap stop adjustment in paragraph 5-6d(2).

(m) Push gear plates (419 and 346) together, and tighten loosened hardware.

(3) CAPACITOR MOTOR B4. - To replace capacitor motor B4, refer to figure 5-5, and proceed as follows:

(a) Remove screws (308) from guide pin block (309).

(b) Loosen screws (270) that mount plug bracket (274).

(c) Pull apart fiber primary gear plate (419) and metal secondary gear plate (346).

(d) Loosen all screws on top of secondary gear plate (346) except screw (305) that is located in the center of the plate.

(e) Remove gears (348) and (353).

(f) Loosen setscrews (357 and 355) in hub of gear (359).

(g) Push center post (356) from secondary gear plate (346) through primary gear plate (419).

(h) Lift out gear (359).

(i) Remove the defective motor (317).

(j) Mount new motor (317) using the four screws that were used to mount the defective motor.

(k) Remove wires from defective motor (317), and connect them to the new motor.

(l) Replace all gears removed, and tighten secondary gear plate (346) and primary gear plate (419).

(4) SECONDARY GEAR PLATE. - To replace gears on motors by removing secondary gear plate, proceed as follows:

(a) Run vacuum capacitor (171) lead screw until the cap plates are meshed and the lead screw disengages.

(b) Loosen screw (270) that mounts plug bracket (274).

(c) Disconnect the 3 wires to potentiometer (90), and cut one tie on cable breakout that is attached to bracket (87).

(d) Run silver tape until equally stored on h-v and l-v drums.

(e) Run pinion gear (81) against tap stop.

(f) Loosen setscrews (246) in coupler (254).

(g) Push coupler against potentiometer (255), and tighten one setscrew.

(h) Loosen setscrews (260) in coil stop (261).

(i) Remove one end of spring (303) on sector gear (381).

(j) Remove retainer ring (183) from plug (186), and push plug through h-v output plate (187).

(k) Remove screws (300) that mount guide pin block (311).

(l) Remove screws (308) that mount guide pin block (309).

(m) Remove screw (385).

(n) Remove screw (310).

(o) Remove screw (247) from post (299).

(p) Remove screw (305).

(q) Carefully lift secondary gear plate (346) from primary gear plate (149).

NOTE

Make certain all gears remain in fiber plate except gears controlling potentiometer (255).

(r) Push coil stop (261) from post of drum stop (282).

(s) Remove secondary gear plate (346).

NOTE

With secondary gear plate (346) removed, any gear, motor, or damaged part in gear train can be replaced.

(t) To replace secondary gear plate (346), proceed as in (u) through (z) below.

(u) Place coil stop (261) in position while placing secondary gear plate (346) in position.

(v) Before securing secondary gear plate (346), make sure that all gears are free, and each section works freely.

(w) Replace all hardware, and mount components that have been removed.

(x) Place spring (303) on sector gear (381).

(y) Reset drum stop assembly (282) for l-v, drum, and tap stop. See tap stop adjustment in paragraph 5-6d(2).

(z) Tighten setscrews (260) on coil stop.

(5) LEAD SCREW ASSEMBLY. - To replace lead screw assembly, refer to figure 5-5, and proceed as follows:

(a) Remove capacitor (171) from metal secondary gear plate (346).

(b) Insert a screwdriver or a special tool (figure 5-11) into screw (168), and turn capacitor drive section until the lead screw is disassembled.

(c) Install new assembly in same manner by reversing movements of capacitor drive section.

(6) MOTOR B1 AND CAPACITOR C6. - Perform the procedures in paragraph 5-7c(1)(fa), (fc), (fe), (ff), (fg), (fh), and (fi) to remove motor B1 (blower motor) and capacitor C6. Reverse the procedure for replacement.

(7) TAP ASSEMBLY AND DRUM ASSEMBLY REMOVAL AND REPLACEMENT. Refer to figure 5-5 and proceed as follows:

(a) Remove plug P7 and coaxial plug P8 from connectors (41 and 45) on the antenna coupler unit.

(b) Loosen twelve screws (1) holding the antenna coupler in its case.

(c) Pull unit out of case. Remove twenty-eight screws (3, 6, 8, 11 and 14) holding shrouds (5, 10, 13, and 15) over the coil drum assembly.

(d) Manually run the coil and tap to maximum (all of the coil ribbon wound on ceramic drum and the tap assembly run to top of coil against the stop).

(e) Remove screw (105) holding silver ribbon (144) to the aluminum shorting drum, and turn the ceramic drum to wind on the remaining ribbon. Tape the ribbon end in place to prevent uncoiling (figure 5-13).

Figure 5-13. Antenna Coupler CU-714/SRA-22, Ceramic Coil Drum

(f) Remove the antenna coupler front casting (49) by removing the screws around the front panel flange.

(g) Remove front plate (54) behind the front casting by removing screws (19) around the rear edge of the front plate.

(h) Remove the tap assembly by running it off the ceramic drum.

NOTE

This completes removal of the tap assembly. Replacement is the reverse of removal. For ceramic drum replacement procedure, continue with the following instructions.

(i) Using a small punch and hammer, punch out roll pin (150) that secures the ceramic drum to the gear train shaft.

(j) Replace defective ceramic drum.

NOTE

If the end assembly of the defective ceramic drum is to be used on the replacement drum, remove the end assembly by unsoldering the ribbon and removing the four screws that secure the end assembly to the drum. Mount the end assembly on the replacement ceramic drum, and solder the ribbon in place. Replace the end-assembly screws making sure that the end-assembly end-stop block is positioned in line with the hole where the ribbon enters the ceramic drum.

(k) Run the ribbon onto the drum in the grooves provided. Tape the loose end of the ribbon to prevent uncoiling.

(l) Replace the ceramic drum to engage the gear train shaft, and secure with a new roll pin in the shaft. Using a punch, flare the roll pin to secure it in place.

(m) Replace the tap assembly by running it onto the ceramic drum past the end of the ribbon, but do not engage the tap assembly with the tap drive gear.

(n) Remove the tape securing the end of the silver ribbon, and attach the ribbon end to the aluminum drum by means of the screw provided.

NOTE

Before securing the ribbon to the aluminum drum, the aluminum drum should be rotated approximately two and one-half to three turns clockwise to obtain spring loading.

(o) Adjust the ceramic drum to the maximum end stop, adjust the tap drive gear to the minimum end stop, and adjust the tap assembly toward minimum coil (bottom end of ribbon) until the tap contacts are positioned on the ribbon at the point where the ribbon extends toward the aluminum shorting drum but still contacts the ceramic drum. Engage the tap assembly with the tap drive gear.

CAUTION

Make sure that the tap contacts seat firmly on the ribbon, or the ribbon and contacts may be burned when power is applied to the antenna coupler. The contacts may be adjusted by slightly bending the contact arms toward the ribbon.

(p) Perform the coil stop adjustment in paragraph 5-6d(1) and the tap stop adjustment in paragraph 5-6d(2).

(q) Replace front plate (54) to secure the coil drums in place, and replace front plate mounting screws (19).

(r) Replace the front casting, and secure in place with screws around the front panel flange.

CAUTION

Be sure that the grounding spring of the aluminum shorting drum is properly seated and making good mechanical contact.

(s) Manually run the coil and tap to maximum (all of ribbon on the ceramic drum and the tap against the end stop).

(t) Replace the tap and drum assemblies by reversing the order of the removal procedures.

(8) VARIABLE CAPACITOR C7. Refer to figures 5-5, 5-14 and 5-15, and proceed as follows:

(a) Make sure high-voltage switch S9 is as shown in figure 5-14 before beginning removal procedures.

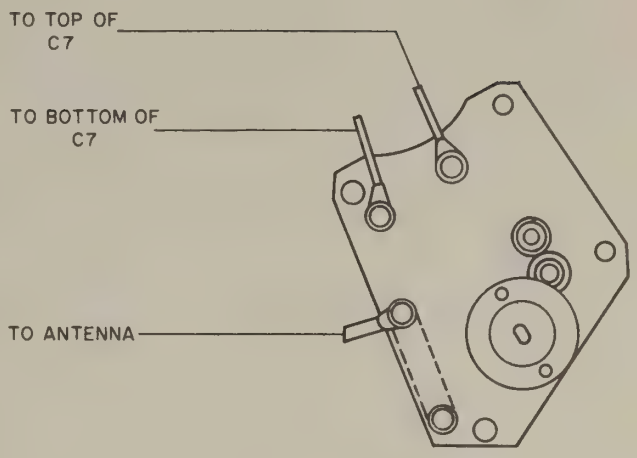


Figure 5-14. High-Voltage Switch

CAUTION

All operations are manual. Do not use voltage to run the gear train.

(b) Run the capacitor until the plates are as far apart (bellows compressed) as needed to disengage the sector gear from the gear train.

(c) Run the capacitor to maximum (plates together, bellows extended).

(d) Remove the bus wire connection from the top of the capacitor and the three screws from the base (figure 5-15).

(e) Lift the capacitor up off the lead screw and corona shield.

NOTE

This procedure must be followed for replacing the ceramic standoffs. If the standoffs must be replaced, the corona shield can be lifted by removing the four screws. The posts can now be removed and replaced. Replace the corona shield.

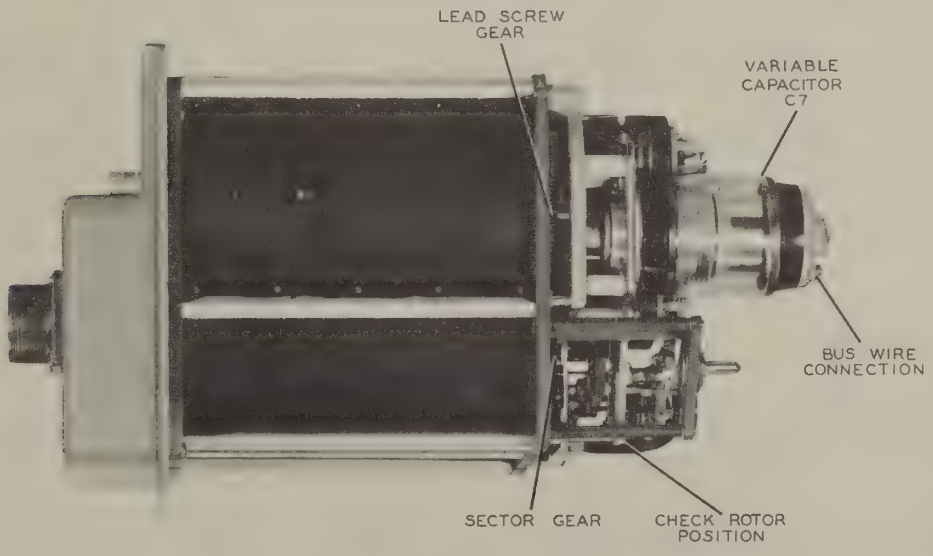


Figure 5-15. Antenna Coupler CU-714/SRA-22, Variable Capacitor Replacement

(f) To replace the capacitor perform procedure steps (g) through (m).

(g) Place the new capacitor on the lead screw and corona shield, and rotate the gear train to engage the lead screw into the capacitor.

CAUTION

Do not forget to replace both bus wire connections, one on the top and one on the bottom.

(h) Run the capacitor toward minimum (bellows compressed) until the plates just begin to disengage.

(i) Mark the lead screw gear with a nonconducting pencil (any colored or grease pencil).

(j) Run the gear train until the lead screw gear has completed seven revolutions. (Run toward minimum, bellows compressed.)

(k) Engage the sector gear, and run the capacitor toward maximum (bellows extended) until the lead screw gear has completed three revolutions.

(l) The capacitor should now be synchronized and can be checked by connecting the control cable and stepping the CAPACITOR switch in the remote control unit from 1 through 12. The capacitor should run to maximum. Switch the SERIES-SHUNT switch (in Coupler Control C-2698/SRA-22) to SERIES and step the CAPACITOR switch from 12 through 1. Switch the SERIES-SHUNT switch to SHUNT. The capacitor plates should be in the same physical location they were in before the stepping test was begun.

c. COMPLETE REMOVAL AND DISASSEMBLY OF ANTENNA COUPLER CU-714/SRA-22.

(1) The procedures below are necessary only if previous removal and disassembly procedures are not adequate. If the defective part is blower motor B1 or capacitor C6, omit steps (a) through (ez) below, and start with step (fa).

(a) Remove plug P7 and coaxial plug P8 from connectors J7 and J8 (41 and 45) on the antenna coupler unit.

(b) Remove the twelve screws (1) holding the antenna coupler unit in its case.

(c) Pull unit out slowly from case, and disconnect P9 from J9 at the front of the antenna coupler. Remove gasket (2) and twenty-eight screws (3, 6, 8, 11, and 14) holding shrouds (5, 10, 13, and 15) over the coil drum assembly. Washers (7), and nuts (9 and 12) will also be removed by this procedure.

(d) Remove six screws (16) holding covers (17 and 18) to the front plate (71).

(e) Unsolder the bus wire on connector J8 (45).

(f) Remove screws (19) (8 roundhead and 5 flathead) from the front plate, and allow front casting (49) to swing down. Care should be taken not to damage the ceramic coil form or wires.

(g) Remove bolt (25), washers (26 and 27), and slug (28).

(h) Remove standoffs (29 and 31), lock washers (32), and solder lug (40) from the studs (30).

(i) Remove two screws (34), two lock washers (35), and ground contact (36) from the front casting (49).

(j) Remove four screws (37) and gasket washers (37A) holding connector (41) to the front casting (49). Also remove nuts (38), and lock washers (39). Connector J7 (41) can now be replaced if necessary. Clearly mark all wires removed to ensure correct reassembly. Replace gasket (42) if it is damaged.

(k) Remove hex nut (43), lock washer (44) and connector J8 (45), if necessary.

(l) Wind silver tape (144) on ceramic drum. Run tap assembly to point where tape leaves ceramic drum to go onto the metal drum. Unsolder tape (144) from solder lug (106).

CAUTION

The tape is under 1.5 pounds of tension. Hold tape with one hand, and unsolder the terminal on the metal drum. Release the tape slowly, and wind on the ceramic drum. Hold the silver tape on the ceramic drum with thin cellophane tape.

(m) Remove screws (50 and 52) and terminals (51 and 53).

(n) Remove two screws (54) and nuts (55), if necessary, to remove capacitor C5 (56).

(o) Remove three screws (57) and switch S8 (58) from front plate (71).

(p) Remove two screws (59), screw (60), lock washer (61), solder lug (62), and center tap mount (63).

NOTE

Be careful not to lose the round nut in shaft MP51 (82).

(q) Slide ball bearing (64) off pinion (81) shaft.

(r) Remove ball bearing (65) from around button contact (108).

(s) Remove six screws (66) and six retaining rings (69). Remove six rollers (68) from six roller arms (67).

(t) Remove five screws (70) and three screws (70A) holding the front plate (71). Swing front plate (71) to one side.

(u) Loosen three setscrews (73), and remove the collar (74). Remove ceramic coil assembly.

(v) Remove two screws (76), switch S10 (78), and spacers (79) from the primary gear plate (419).

(w) Remove roll pin (80) (pin closest to primary gear plate (419)) from tap drive pinion (81), and remove tap drive pinion from primary gear plate (419).

(x) Remove shaft (82).

(y) Remove three screws (83), four setscrews (84), coupler (85), four nuts (86), bracket (87), four screws (88), two potentiometer locks (89), and potentiometer R7 (90).

(z) Remove two screws (91), two lock washers (92), and contacts (93).

(aa) Remove retaining ring (94) and spacers (95 and 96). Be extremely careful not to lose four springs (97) which also may be removed at this time.

(ab) Remove spacer (98) and center tap hub (99).

(ac) Remove pin (100) from stop assembly (103).

(ad) Remove two screws (101), l-v drum driven gear (102), and stop assembly (103).

(ae) Slide off l-v drum (107), and remove button contact (108) and l-v drum assembly (109).

(af) Remove screw (110), washer (111), and nut (112) holding spring (115) to the l-v drum end assembly (120).

(ag) Remove screw (113) and washer (114) from the flange coupler (117).

(ah) Remove spring (115).

(ai) Remove setscrew (116), and slide flange coupler (117) off l-v drum shaft (118).

(aj) Remove Oilite bearing (119) from l-v drum end assembly (120).

(ak) Remove the tap ring assembly from the coil form.

(al) Remove three screws (121), three lock washers (122), and three washers (123).

(am) Remove screw (124), lock washer (125), screw (126), lock washer (127), and two strip contacts (128, 129).

(an) Remove slip ring (130).

(ao) Remove four spacers (131, 132, 133, 134) and four rollers (135).

(ap) Remove two screws (136) and two stop screws (137) from roller shaft (138, 139, 140, and 141) and plastic spur gear (142).

(aq) Unsolder the ribbon from the bus wire, and remove silver coil ribbon (144).

(ar) Remove screw (145) and lock washer (146) that secures solder lug (147).

(as) Remove four screws (148) and flange coupler (149).

(at) Remove roll pin (150), and slide out h-v output shaft (151).

(au) Remove washer (152) and h-v contact (153).

(av) Remove six nuts (154), twelve washers (155, 156), and six screws (157).

(aw) Separate plastic spur gear (158), h-v drum stop assembly (159), and h-v drum (160).

(ax) Remove screw (161), lock washer (162), and solder lug (163) from variable capacitor (171).

(ay) Remove the three screws (164), three lock washers (165), h-v spark gap contact (166), and solder lug (167).

(az) Remove screw (168), washer (169), and Teflon spur gear (170).

(ba) Remove screw (172) from capacitor plate (176).

(bb) Remove variable capacitor (171) from capacitor plate (176).

(bc) Remove small nut (173), lock washer (173A), h-v contact (174), and screw (175) from capacitor plate (176).

(bd) Remove four screws (177) holding h-v collar (178) and gear (179) to capacitor lead screw (180). Separate these parts.

(be) Remove three screws (182) holding h-v output plate (187).

(bf) Remove retaining ring (183) and spacers (184, 185).

(bg) Separate P10 (186) and h-v output plate (187).

(bh) Remove three screws (188) and three h-v posts (189).

(bi) Remove two nuts (190) and spacers (191) from switch S11.

(bj) Remove switch S11 (192) and two spacers (193).

(bk) Remove two studs (195).

(bl) Remove three nuts (196), three lock washers (197), three washers (198), and three washers (199).

(bm) Remove screw (200), lock washer (201), solder lug (202), washer (203), nut (204), and washer (205).

(bn) Remove retaining ring (206) and washers (207, 208, 209) from the h-v rotor shaft (304).

(bo) Remove two nuts (210), lock washers (211), solder lug (215), and four washers (212, 213).

(bp) Remove two studs (214), and separate h-v contact (216) and two spacers (217).

(bq) Remove two screws (218), two lock washers (219), two solder lugs (220), four washers (221, 222), and two contact buttons (223).

(br) Remove two screws (224), two lock washers (225), solder lug (228), two washers (226), and two washers (227).

(bs) Separate strip contact (229), two spacers (230), and h-v plate (231).

(bt) Remove four standoffs (232, 233) and six studs (234, 235, 236).

(bu) Remove setscrew (237) and roll pin (238) from h-v rotor collar (240).

(bv) Remove three screws (239) that secure h-v rotor collar (240) to h-v rotor (245).

(bw) Carefully remove two nylon screws (244) and h-v rotor strip (242).

(bx) Remove two setscrews (246) from coupler (254).

(by) Remove three screws (247, 248) and two lock washers (249).

(bz) Remove four nuts (250), four lock washers (251), four screws (252), and two potentiometer locks (253).

(ca) Slip coupler (254) off shaft of potentiometer R6 (255). Also remove mounting bracket (256).

(cb) Remove two setscrews (257) from coil stop cam (258).

(cc) Remove spring (259).

(cd) Remove two setscrews (260) from coil stop (261).

(ce) Remove screw (262), lock washer (263), washer (264), and h-v spark gap contact (265) from secondary gear plate (346).

(cf) Remove two nuts (266), two lock washers (267), two screws (268), and two clamps (269A) that secure plug P9 (269) to bracket (274).

(cg) Remove two screws (270A) and two lock washers (271A) that secure bracket (274) to secondary gear plate (346). Also remove screw (270) and lock washer (271).

(ch) Remove screw (275), washer (260), and Teflon spur gear (277) from primary gear plate (419).

(ci) Remove screw (278), washer (279), Teflon spur gear (280), and retainer ring (281) from primary gear plate (419).

(cj) Remove coil stop assembly (282).

(ck) Deleted.

(cl) Remove two screws (285) and center tap block (286).

(cm) Remove screw (287) and spacer bar (288).

(cn) Remove screw (289) and spacer bar (290).

(co) Remove screw (291) and spacer bar (292).

(cp) Remove spacer bar (293).

(cq) Remove screw (294) and spacer bar (295).

(cr) Remove spacer bar (296).

(cs) Remove two screws (297).

(ct) Remove screw (298) and spacer (299).

(cu) Remove two screws (300).

(cv) Remove screw (301).

(cw) Remove screw (302).

(cx) Remove spring (303) connected to h-v rotor shaft (304).

(cy) Remove screw (305) and spacer (306).

(cz) Remove screw (305A) and spacer (306A).

(da) Remove spacer (307).

(db) Remove two screws (308) and guide pin block (309).

(dc) Remove two screws (310) and guide pin block (311).

(dd) Remove h-v rotor shaft (304).

(de) Remove secondary gear plate (346).

(df) Remove four screws (312) and coil motor (313).

(dg) Remove four screws (314) and tap motor (315).

(dh) Remove four screws (316) and capacitor motor (317).

(di) Remove four screws (318) and four h-v posts (319).

(dj) Remove the two capacitor drive pin stops (320).

(dk) Remove the two stop pin screws (321).

(dl) Remove Oilite bearings (322, 323, 324, 325, 326, 327).

(dm) Remove ball bearings (328, 329, 330) from gear shafts (382, 383, and 376), respectively.

(dn) Remove Oilite bearing (331) from gear shaft (368).

(do) Remove ball bearings (332 and 333) from gear shafts (366 and 367), respectively.

(dp) Remove Oilite bearing (334) from gear shaft (363).

(dq) Remove ball bearings (335 and 336) from gear shafts (362 and 361), respectively.

(dr) Remove Oilite bearings (338, 339, 340, and 341) from gear shafts (356, 354, 353, and 352), respectively.

(ds) Remove spacer (342).

(dt) Remove Oilite bearings (343, 344, and 345) from gear shafts (349, 375, and 386), respectively.

(du) Remove three screws (347) that secure gear (348) to gear (349).

(dv) Remove two screws (350) that secure gear (351) to hub (352).

(dw) Remove gear assemblies (353, 354).

(dx) Remove two setscrews (355) and shaft (356) from gear (359).

(dy) Remove two screws (357) and stop block (358) from gear (359).

(dz) Remove gear assemblies (361, 362).

(ea) Remove spur gear shaft (363).

(eb) Remove screw (364) and stop block (365) from gear (366).

(ec) Remove gear (366).

(ed) Remove gear assemblies (367, 368).

(ee) Remove gear-shaft assembly (369).

(ef) Remove gear assemblies (370, 371, and 372).

(eg) Remove roll pin (373) and separate gear-shaft assembly (374) and spur gear (375).

(eh) Remove gear assembly (376).

(ei) Remove retainer ring (377) and three washers (378, 379, 380).

(ej) Remove gear-shaft assembly (381).

(ek) Remove spur gear shaft (382).

(el) Remove gear-shaft assembly (383).

(em) Remove roll pin (384), shaft (385), and gear-shaft assembly (386).

(en) Remove spring (387), retainer ring (388), and stop arm (389).

(eo) Remove four screws (390) that secure pin stop (391) to the primary gear plate.

(ep) Remove ball bearing (392) and Oilite bearing (393) from the primary gear plate.

(eq) Remove bearing (394).

(er) Remove Oilite bearing (395) and ball bearing (396) from the primary gear plate.

(es) Remove Oilite bearing (397).

(et) Remove Oilite bearing (398).

(eu) Remove three Oilite bearings (399, 400, 401).

(ev) Remove ball bearing (402) and Oilite bearing (403).

(ew) Remove four ball bearings (404, 405, 406, 407).

(ex) Remove six Oilite bearings (408, 409, 410, 411, 412, 413).

(ey) Remove two screws (414), two Oilite bearings (415, 416), and hub support (417).

(ez) Remove ball bearing (418) from primary gear plate (419).

(fa) Remove twelve screws (420) and lock washers (421) that hold blower plate (427) onto right-hand side of the antenna coupler case (477).

(fb) Remove plug (422) and its rubber gasket (423).

(fc) Remove large rubber gasket (424).

(fd) Remove four screws (425) and nomenclature plate (426), if necessary.

(fe) Remove six screws (428) and six lock washers (429).

(ff) Remove four screws (430) and lock washers (431).

(fg) Remove three screws (433), lock washers (434), and spacers (435).

(fh) Remove blower (436).

(fi) Remove nuts and capacitor mounting brackets (437, 439), lock washers (438), and capacitor C6 (440).

(fj) Remove terminal (443) by removing nut (441) and lock washer (442).

(fk) Remove cradle (446) by removing eleven screws (445).

(fl) Remove five screws (447) and remove plenum (448) and blower gasket (449).

(fm) Remove nut (450) and guide pin (451).

(fn) Remove nut (452) and guide pin (453).

(fo) Remove two screws (461, 462) and connector J10 (463).

(fp) Remove six screws (466) and eighteen washers (466A, 467, 468).

(fq) Remove h-v output insulator (469) and gasket (470).

(fr) Remove two nuts (471, 472), two washers (473, 474), gasket (475), and h-v output shaft (476).

(fs) Remove screw (464) and h-v post (465).

d. REASSEMBLY AND REPLACEMENT OF ANTENNA COUPLER CU-714/SRA-22.

Refer to figure 5-5 for all reassembly and replacement procedures.

(1) GEAR SUBASSEMBLIES.

(a) Replace two capacitor drive pin stops (320) in secondary gear plate (346).

(b) Replace two spacers (306, 306A) using two screws (305, 305A).

(c) Replace two guide pin blocks (309, 311) using four screws (308, 310).

(d) Secure four h-v posts (319) to secondary gear plate (346) using screws (318).

(e) Mount h-v contact (174) on capacitor plate (176) using two nuts (173) and screws (175).

(f) Mount capacitor plate (176) on h-v posts (319) using four screws (173).

(g) Secure capacitor C7 (171) to capacitor plate (176) using three screws (164) and lock washers (165). H-v spark gap contact (166) should be secured with the lower screw (164). Adjust h-v spark gap contact (166) for 0.187-inch gap between its mating part. Solder lug (167) should be secured with upper screw (164).

(h) Use four screws (177) to secure gear (179) and h-v collar (178) to capacitor lead screw (180).

(i) Screw capacitor lead screw (180) assembly into capacitor plate (176), and replace ball bearing (407).

(j) Secure three motors (313, 315, 317) to the secondary gear plate (346) using twelve screws (312, 314, 316).

(k) Replace gear (386) on shaft (385), and secure with roll pin (384). Replace bearing (394), bearing (345), and gear-shaft assembly (384, 385, and 386).

NOTE

Some bearings must be pressed into the gear plates (346, 419). Maintenance personnel may elect to press all bearings into place before attempting to install the gears; however, in the assembly discussion, all bearings will be mentioned with the gears they support.

(l) Replace two ball bearings (402, 333), and install gear (363) on secondary gear plate (346).

(m) Replace two Oilite bearings (403, 334), and install gear (363) on secondary gear plate (346).

(n) Replace gear shaft assembly (381).

(o) Replace two Oilite bearings (399, 324), and install gear assembly (371) on secondary gear plate (346).

(p) Replace stop pin screw (321).

(q) Replace two bearings (344, 392), slide gear (375) onto the long shaft of gear-shaft assembly (374), and slide the short shaft of gear-shaft assembly (374) into primary gear plate (419). Replace two bearings (323, 398), and install gear (372) on primary gear plate (419) at the same time. Replace roll pin (373) in gear (375), but do not tighten it at this time.

(r) Replace two Oilite bearings (400, 325), and replace gear assembly (370).

(s) Replace two Oilite bearings (326, 401), and install gear-shaft assembly (369).

(t) Replace two ball bearings (328, 392), and install spur gear shaft (382).

(u) Replace two Oilite bearings (331, 397), and replace gear assembly (368).

(v) Replace ball bearings (329), Oilite bearing (393), and gear-shaft assembly (383).

(w) Secure pin stop (391) to primary gear plate (419) with four screws (390). Slide stop arm (389) on pin stop (391), snap on retainer ring (388), and connect spring (387).

(x) Replace two Oilite bearings (337, 409), and install gear assembly (360).

(y) Secure stop block (358) to gear (359) using two screws (357). Slide gear (359) on shaft (356). Replace two setscrews (355) but do not tighten them at this time. Replace two Oilite bearings (338, 408), and install gear (359) assembly.

(z) Replace two ball bearings (335, 405), and install gear assembly (362).

(aa) Replace two ball bearings (336, 406), and install gear assembly (361).

(ab) Secure stop block (432) on gear-shaft assembly (366) with screw (364). Replace two ball bearings (332, 404), and install gear-shaft assembly (366).

(ac) Replace two ball bearings (330, 396), and install gear assembly (376).

(ad) Replace two Oilite bearings (339, 411), and install gear assembly (354).

(ae) Replace two Oilite bearings (340, 410), and install gear assembly (353).

(af) Slide gear (351) on shaft of hub (352), and secure with two screws (350). Install two Oilite bearings (341, 412), and install gear-hub assembly.

(ag) Slide gear (348) onto the shaft of gear (349); secure the two gears together with three screws (347). Replace two Oilite bearings (343, 413), and install the gear assembly.

(ah) Replace Oilite bearing (327), h-v rotor shaft (304), and spring (303).

(ai) Attach spacer bar (288) to primary gear plate (419) using screw (287).

(aj) Secure secondary gear plate (346), including motors and capacitor, to primary gear plate (419) using screws (420).

(ak) Connect spring (303).

(al) Slide spur gear (170) onto capacitor lead screw shaft (180), and secure with screw (168) and washer (169).

(am) Slide spur gear (277) onto shaft (385), and secure with screw (275) and washer (385).

(an) Replace ball bearing (418). Snap retainer ring (281) on shaft (393), and secure with screw (278) and washer (279).

(ao) Gear train assembly is complete; setscrews (355) and roll pin (373) will be tightened during the alignment procedures.

(ap) Insert screw (161), lock washer (162), and solder lug (163) in rear of capacitor (171).

(2) CAPACITOR HOME SWITCH S10.

(a) Replace two Oilite bearings (416, 415) in hub support (417).

(b) Slide hub support (417) and bearings (416, 415) over gear-shaft assembly (381), and secure in place with two screws (417).

(c) Slide three washers (380, 379, 378) over gear-shaft assembly (381), and snap on retainer ring (377). Assemble spacers (77, 79) and switch (78) on screws (76). Slip the switch onto gear-shaft assembly (381), and secure with screws (76). Gear-shaft assembly (381) should be lubricated with silicone compound, Dow Corning DC-4, Collins part no. 005-0201-00.

(3) COIL STOP ASSEMBLY.

(a) Replace two Oilite bearings (395, 322), and slide coil stop assembly (283) into primary gear plate (419).

(4) POTENTIOMETER R7.

(a) Insert shaft of potentiometer R7 (90) through bracket (87), and secure with two potentiometer locks (89), four screws (88), and four nuts (86).

(b) Slide coupler (85) over gear shaft (360).

(c) Slide shaft of potentiometer R7 (90) into coupler (85), and secure with two screws (83).

(d) Insert two setscrews (84) into coupler (85).

(5) H-V OUTPUT PLATE.

(a) Replace three h-v posts (189) using three screws (188).

(b) Replace h-v output plate (187), and secure with three screws (182).

(c) Replace two spacers (185, 184) on plug P10 (186), and snap on retainer ring (183).

(6) COIL LIMIT, R6, H-V CONTACT.

(a) Slide coil stop (261) onto the shaft of coil stop assembly (282). Connect spring (259). Insert two screws (260), but do not tighten at this time.

(b) Replace R6 mounting bracket (256) using screw (247), spacer (299), and screw (298). Secure mounting bracket further with two screws (248) and two lock washers (249).

(c) Slide coil stop cam (258) on shaft of gear-shaft assembly (374). Replace two set-screws (257), but do not tighten at this time.

(d) Slide coupler (254) over shaft of gear-shaft assembly (374). Slide shaft of potentiometer R6 (255) into coupler (254). Replace setscrews (246), but do not tighten at this time.

(e) Replace two potentiometer locks (253) using four screws (252), lock washers (251), and nuts (250).

(f) Replace h-v spark gap contact (265) on secondary gear plate (346) using screw (262), lock washer (263), and washer (264). Adjust h-v spark gap contact (265) for 0.187-inch gap between its mating part.

(7) SWITCH S11, H-V ROTOR, PLUG P9.

(a) Secure h-v rotor collar (240) to h-v rotor (245) using three screws (239).

(b) Replace two rotor strips (242, 243) on h-v rotor (245) using four screws (244).

(c) Replace h-v rotor (245) on h-v rotor shaft (415), and replace setscrew (237), but do not tighten.

(d) Secure two contact buttons (223) on h-v plate (231) using two screws (218); assemble two lock washers (219), two solder lugs (220), and four washers (222) on screws (218).

(e) Assemble washer (225), solder lug (228), and two washers (226, 227) on screw (224). Two such assemblies are needed. Secure strip contact (229) and spacers (230) to h-v plate (231) using screws (224). Screw assembly for center of strip contact (229) does not use solder lug (228).

(f) Replace h-v contact (216) on h-v plate (231) using two studs (214) and two spacers (217). Secure studs (214) to h-v contact (216) by placing two washers (212, 213), solder lug (215), lock washer (211), and nut (210) on the lower stud and by placing two washers (212, 213), lock washer (211), and nut (210) on the upper stud.

(g) Assemble lock washer (201), solder lug (202), washer (203), spacer (204), and washer (205) on screw (200). Secure standoff (233) to h-v plate (213) using screw (200).

(h) Replace studs (234, 235, 236) and three standoffs (232).

(i) Replace h-v plate (231) on studs (236), and secure with three washers (199), nuts (198), lock washers (197), and nuts (196).

(j) Replace washers (209, 208, 207) and retainer ring (206) on h-v rotor shaft (304).

(k) Replace two studs (195), spacers (193), switch S11 (192), spacers (191), and nuts (190) on h-v plate (231).

(l) Adjust h-v rotor strips (242, 243) so they are centered on their contacts and have a contact pressure of 50 to 100 grams. (The h-v collar (240) may be adjusted to secure this contact pressure.) Secure h-v rotor strips (242, 243) in place by tightening setscrew (237) and replacing roll pin (238) in h-v rotor collar (240).

(m) Mount plug P9 (269) on bracket (274) using two clamps (269A), two screws (268), two lock washers (267), and two nuts (266).

(n) Secure bracket (274) to secondary gear plate (346) using three screws (270) and lock washers (271). Replace spacer (342).

(8) H-V DRUM.

(a) Replace the silver coil ribbon (144) on h-v drum (160). Tape the forward end of the silver ribbon to the drum; secure the other end of the silver ribbon with solder lug (143).

(b) Slip flange coupler (149) through h-v drum stop assembly (159). Secure in place using four screws (148).

(c) Secure spur gear (158) to h-v drum stop assembly (159) and h-v drum (160) using six screws (157), washers (156, 155), and nuts (154).

(d) Replace h-v contact (153) and retainer ring (152). Slide h-v output shaft into flange coupler (149), and secure with screw (145), lock washer (146), and solder lug (147).

(e) Slide h-v output shaft (151) of h-v drum assembly through primary gear plate (419), coupler (74), and secondary gear plate (346). Replace two setscrews (73) and roll pin (150).

(f) Replace four roller shafts (141, 140, 139, 138) on spur gear (142) using two screws (136) and two stop screws (137).

(g) Slide four rollers (135) and four spacers (134, 133, 132, 131) onto roller shafts (141, 140, 139, 138).

CAUTION

Replace rollers (135) in their exact original order. Placement of these components is imperative to the spiral track they must follow.

(h) Secure slip ring (130) to the roller shafts using three screws (121), three lock washers (122), and three washers (123). Secure two contacts (129, 128) to slip ring (130) and roller shaft (140) using two lock washers (127, 125) and two screws (126, 124).

(i) Replace gear assembly (142) on h-f drum (160).

CAUTION

When assembling gear assembly (142) on h-v drum (160), do not drag strip contacts (128, 129) on the ceramic drum. Also, make certain that strip contact (128) makes good contact with silver ribbon (144).

(j) Replace ball bearing (65) and sliding contact (108) on l-v drum end assembly (109).

(k) Replace l-v drum end assembly (109) in l-v drum (107), and secure with screws (105).

(l) Slide flange coupler (117) on l-v drum shaft (118). Start setscrew (116), but do not tighten.

(m) Secure coupler (115) to flange coupler (117) using screw (113) and washer (114).

(n) Replace l-v drum end assembly (120) and Oilite bearing (119) on l-v drum shaft (118).

(o) Secure coupler (115) to l-v drum end assembly (120) using screw (110), washer (111), and nut (112).

(p) Slide stop assembly (103) onto shaft (179), and secure with roll pin (100).

(q) Compress spring (115) slightly, and tighten setscrew (116) to secure flange coupler (117) to l-v drum shaft (118).

(r) Engage l-v drum end assembly (120) with l-v drum (107), and secure with screws (104).

(s) Secure l-v driven gear (102) to stop assembly (103) using two screws (101).

(t) Slide l-v drum (107) assembly onto spur gear shaft (382), and secure with roll pin (382A).

(u) Solder lug (106) to the end of silver ribbon (144). Secure solder lug (106) to the l-v drum (107) with one of the l-v drum end assembly screws (105).

CAUTION

Before attaching the silver ribbon to the l-v drum, the drum should be rotated 2-1/2 to 3 turns clockwise to obtain spring loading. Tape tension must be 1 to 1.5 pounds force exerted tangentially by the l-v drum after the drum has been moved 1/32-inch counterclockwise as viewed from the gear plate assembly.

(9) FRONT PLATE.

(a) Secure center tap block (286) to primary gear plate (419) using two screws (285).

(b) Slide tap drive pinion (81) over gear assembly (376) shaft, and secure with roll pin (80). Replace ball bearing (64).

(c) Replace tube insulator (72).

(d) Secure spacer bars (288, 295) to primary gear plate (419) using screws (294, 287).

(e) Secure switch S8 (58) to front plate (71) using three screws (57).

(f) Secure center tap mount (63) to front plate (71) with two screws (59).

(g) Secure two terminals (51, 53) with screws (50, 52).

(h) Replace six rollers (68) on roller arms (67), and secure with retainer rings (69). Secure roller arms (67) to front plate (71) with six screws (66).

(i) Secure capacitor C5 (56) to front plate (71) with two screws (54) and nuts (55).

(j) Replace spacers (98) in center tap hub (99).

CAUTION

Spacers (98) are made of silver graphite and are very brittle; handle with extreme care.

(k) Replace springs (97) in center tap hub (99). Assemble two spacers (96, 95) and the retainer ring (94) on center tap hub (99).

(l) Secure contacts (93) to center tap hub (99) with two screws (91) and washers (92).

(m) Slide center tap hub assembly (99) onto shaft (82). Fix shaft (82) in place on primary gear plate (419) making certain that one of the spacers (95, 96) is on either side of, and makes contact with, slip ring (130).

(n) Replace front plate (71), and secure with screws (70). Replace screw (60), lock washer (61), and solder lug (62).

(10) FRONT CASTING.

(a) Replace nomenclature plate (47) with four screws (46).

(b) Replace connector J8 (45) using lock washer (44) and nut (43).

(c) Replace gasket (42) and connector J7 (41) using four screws (37), washers (37A), solder lugs (40), lock washers (39), and nuts (38).

(d) Replace ground contact (36) using two lock washers (35) and screws (34).

(e) Replace stud (33), lock washer (32), and standoff (31).

(f) Replace stud (30) and standoff (29).

(g) Assemble washer (26) and lock washer (27) on bolt (25). Replace slug (28).

(h) Replace stud (24), nut (23), solder lug (22), lock washer (21), and nut (20).

(i) Secure front casting (49) to front plate (71) with screws (19).

(j) Replace two covers (18, 17) using six screws (16).

(11) SHROUDS. - Replace four shrouds (5, 10, 13, 15) using twenty-eight screws (3, 6, 8, 11, 14), nuts (9, 12), and lock washers (7) as illustrated in figure 5-5.

(12) BACKLASH CHECKS. - The following backlash checks should be performed after reassembly of the antenna coupler.

(a) Total backlash of gear (142) when pinion of tap motor (315) is held stationary must be no more than 0.009 inch.

(b) Total backlash of the capacitor gear (361) when the capacitor motor (317) is held stationary must be no more than 0.016 inch.

(c) Total backlash of h-v coil gear (158) when the pinion of coil motor (313) is held stationary must be no more than 0.011 inch.

(d) Total backlash of h-v coil gear (158) when l-v coil gear (361) is held stationary must be no more than 0.010 inch measured tangentially at the pitch line of the h-v gear (158).

(13) END PLAY AND CLEARANCES.

(a) Check that the end play on pinion gear (376) is between 0.010 and 0.020 inch.

(b) Check that end play of l-v drum (107) is between 0.010 and 0.020 inch.

(c) Check that end play on h-v drum shaft (151) is between 0.001 and 0.003 inch. There must be no appreciable bind when inserting a 0.005-inch shim between the h-v drum (160) and its rollers (68).

(14) REASSEMBLING AND REPLACING THE CASE AND BLOWER ASSEMBLY. - This paragraph covers the reassembly of all parts shown on sheet 1 of figure 5-5 (part index numbers 420 through 478).

(a) Secure h-v post (465) to the inside of the case (477) using screw (464).

(b) Place gasket (475) on the threaded end of h-v output shaft (476).

(c) Insert the threaded end of h-v output shaft (476) through the hole in the center of the h-v output insulator (469).

(d) Slide washer (474) onto the threaded end of h-v output shaft (476).

(e) Slide washer (473) onto the threaded end of h-v output shaft (476), and screw on two nuts (472, 471).

(f) Place gasket (470) on the case (477) so that the holes in each are in line.

(g) Place h-v output insulator (469) on the gasket (470) so that the holes in each are in line, and secure in place with six screws (466) and eighteen washers (466A, 467, 468).

(h) Replace connector J10 using two screws (462, 461).

(i) Ensure cover (458) is flush with the rear of connector (457), and secure using two screws (456), two lock washers (455), and two nuts (454).

(j) Replace the two guide pins (453, 451) using nuts (452, 450).

(k) Mount plenum (448) to the case (477) on the left side of the dividing partition using five screws (447).

(l) Mount cradle (446) to the case (477) using eleven screws (455).

(m) Mount terminal (443) to blower mounting bracket (444) using screw (441) and lock washer (442).

(n) Mount capacitor C6 (440) to blower mounting bracket (444) using the two capacitor mounting brackets (439, 437), two lock washers (438), and two nuts (437).

(o) Mount blower (436) to the blower mounting bracket (444) using three screws (433), three lock washers (434), four screws (430), and four lock washers (431). Replace three spacers (435) on the screws (433).

(p) Position the blower gasket (449) over the end of the blower opening.

(q) Mount the blower mounting bracket to the case (477) using six screws (428) and six lock washers (429).

(r) Replace plug (422) and its gasket (423). Gaskets (423, 424) must be lubricated with grease MIL-G-16908.

(s) Carefully position gasket (424) and blower plate (427), and secure to case (477) with twelve screws (420) and lock washers (421).

(15) REPLACING ANTENNA COUPLER ASSEMBLY.

(a) Replace gasket (2).

(b) Replace the antenna coupler assembly in the case (477).

(c) Secure the antenna coupler assembly to the case with twelve screws (1). Replace plug P7 and coaxial plug P8 on connector J7 (41) and J8 (45).

(16) INSTALLATION OF DRY AIR OR NITROGEN.

(a) Remove plug (422) and its rubber gasket (423) from blower plate (427).

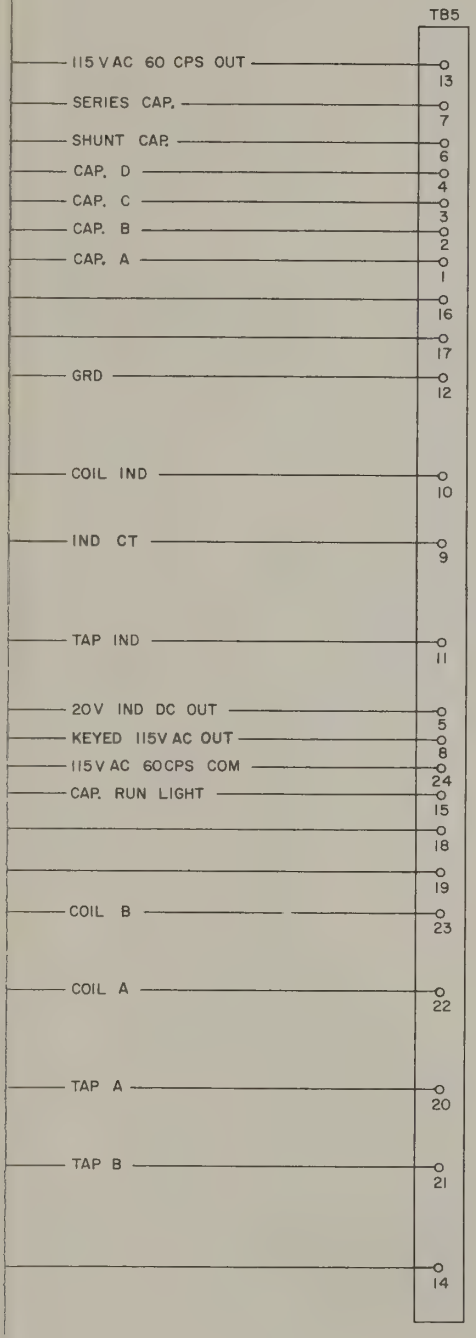
(b) Drill 5/16-inch hole in center of plug (422).

(c) Thread hole 1/8-27 NPT.

(d) Screw valve assembly into plug (422) (valve assembly number SK-2042; nickel-plated brass; federal specification QQ-N-290; Dill Manufacturing Company, Cleveland, Ohio).

(e) Replace plug (422) and its gasket (423). Gasket (423) must be lubricated with grease MIL-G-16908.

(f) Pressurize the antenna coupler to two psig with dry air or nitrogen.



NOTES:

1. AIR1 AND AIR2 SELECTED TO MATCH WITHIN 1%.
2. AIR3, AIR4, AIR5 AND AIR6 SELECTED VALUES ±1%. AIR3–AIR4 SELECTED FROM RANGE BETWEEN 4750–6980 OHMS. AIR5–AIR6 SELECTED FROM RANGE BETWEEN 51.1 AND 1000 OHMS.
3. R9 AND R10 USED WITH MARION NULL INDICATOR METER ONLY.
4. MARION NULL INDICATOR METER IS NOT USED ON EQUIPMENT FROM SERIAL NUMBER 97 UP, EXCEPT FOR SERIAL NUMBERS 98, 99, 104 AND 108.
5. COMPONENTS R7 AND C12 ADDED SERIAL NUMBER 125 UP.
6. TRANSFORMER PRIMARY WIRED FOR 115V OPERATION. SEE BELOW FOR 230V OPERATION.
   a. REMOVE BUS JUMPERS FROM TRANSFORMER TERMINALS (1, 3 AND 2, 4).
   b. REMOVE THE TA95 WIRE (WHITE-GREEN TRACER) THAT GOES FROM T1-1 TO C4-1 (ON THE TERMINAL BOARD TB1) FROM T1-1 AND PLACE IT ON T1-3.
   c. JUMPER TERMINALS T1-2 AND T1-3 TOGETHER WITH BUS WIRE.
   d. CHANGE F1 TO 3/4 AMP.
7. R8 CHANGED TO 15 OHMS AND PLACED FROM K1 PIN 11 TO GROUND EFFECTIVE SERIAL NUMBER 217 AND UP.
8. S6 AND PA INTERLOCK NO. 1 AND PA INTERLOCK NO. 2 ADDED SERIAL NUMBER 336 AND UP.
9. TERMINAL BOARD TB5, CABLE AND PLUG P5 ASSEMBLY ADDED SERIAL NUMBER 336 AND UP.
10. C18 AND C19 ADDED SERIAL NUMBER 336 AND UP.
11. F1 CHANGED TO 1.5 AMP FAST-BLO SERIAL NUMBER 336 AND UP.
12. BUSHIPS HAS AUTHORIZED AN EIB FIELD CHANGE FOR EARLIER SERIAL NUMBER EQUIPMENT.
13. A2R2 AND A2R3 SELECTED FROM RANGE BETWEEN 215–825 OHMS.

Figure 5-16. Coupler Control C-2698/SRA-22, Schematic Diagram

(s) Carefully position gasket (424) and blower plate (427), and secure to case (477) with twelve screws (420) and lock washers (421).

(15) REPLACING ANTENNA COUPLER ASSEMBLY.

(a) Replace gasket (2).

(b) Replace the antenna coupler assembly in the case (477).

(c) Secure the antenna coupler assembly to the case with twelve screws (1). Replace plug P7 and coaxial plug P8 on connector J7 (41) and J8 (45).

(16) INSTALLATION OF DRY AIR OR NITROGEN.

(a) Remove plug (422) and its rubber gasket (423) from blower plate (427).

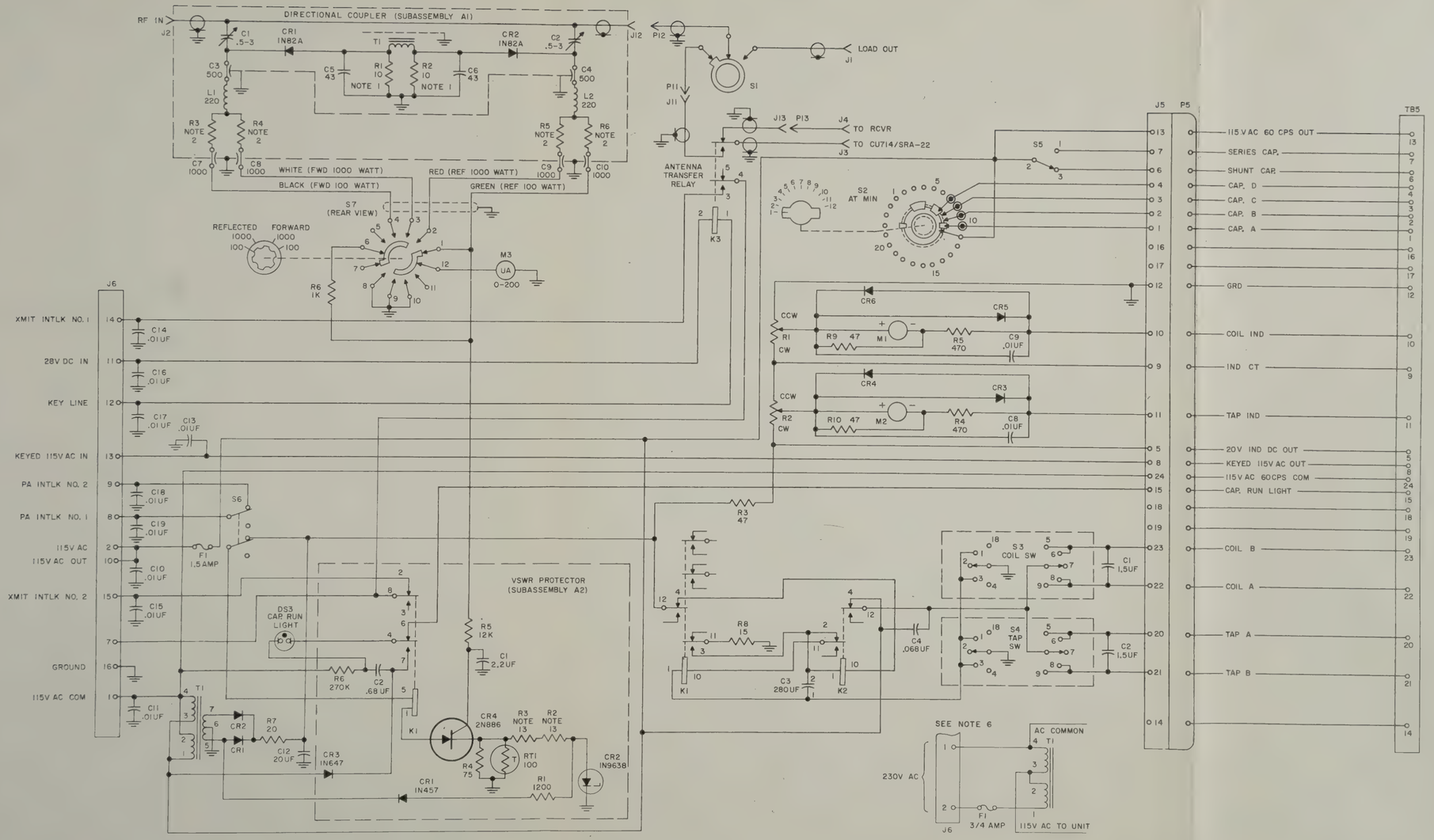
(b) Drill 5/16-inch hole in center of plug (422).

(c) Thread hole 1/8-27 NPT.

(d) Screw valve assembly into plug (422) (valve assembly number SK-2042; nickel-plated brass; federal specification QQ-N-290; Dill Manufacturing Company, Cleveland, Ohio).

(e) Replace plug (422) and its gasket (423). Gasket (423) must be lubricated with grease MIL-G-16908.

(f) Pressurize the antenna coupler to two psig with dry air or nitrogen.



NOTES:

1. AIR1 AND AIR2 SELECTED TO MATCH WITHIN 1%.
2. AIR3, AIR4, AIR5 AND AIR6 SELECTED VALUES ±1%. AIR3-AIR4 SELECTED FROM RANGE BETWEEN 4750-6980 OHMS. AIR5-AIR6 SELECTED FROM RANGE BETWEEN 51.1 AND 1000 OHMS.
3. R9 AND R10 USED WITH MARION NULL INDICATOR METER ONLY.
4. MARION NULL INDICATOR METER IS NOT USED ON EQUIPMENT FROM SERIAL NUMBER 97 UP, EXCEPT FOR SERIAL NUMBERS 98, 99, 104 AND 108.
5. COMPONENTS R7 AND C12 ADDED SERIAL NUMBER 125 UP.
6. TRANSFORMER PRIMARY WIRED FOR 115V OPERATION. SEE BELOW FOR 230V OPERATION.
   a. REMOVE BUS JUMPERS FROM TRANSFORMER TERMINALS (1, 3 AND 2, 4).
   b. REMOVE THE TA95 WIRE (WHITE-GREEN TRACER) THAT GOES FROM T1-1 TO C4-1 (ON THE TERMINAL BOARD TB1) FROM T1-1 AND PLACE IT ON T1-3.
   c. JUMPER TERMINALS T1-2 AND T1-3 TOGETHER WITH BUS WIRE.
   d. CHANGE F1 TO 3/4 AMP.
7. R8 CHANGED TO 15 OHMS AND PLACED FROM K1 PIN 11 TO GROUND EFFECTIVE SERIAL NUMBER 217 AND UP.
8. S6 AND PA INTERLOCK NO.1 AND PA INTERLOCK NO.2 ADDED SERIAL NUMBER 336 AND UP.
9. TERMINAL BOARD TB5, CABLE AND PLUG P5 ASSEMBLY ADDED SERIAL NUMBER 336 AND UP.
10. C18 AND C19 ADDED SERIAL NUMBER 336 AND UP.
11. F1 CHANGED TO 1.5 AMP FAST-BLO SERIAL NUMBER 336 AND UP.
12. BUSHIPS HAS AUTHORIZED AN E1B FIELD CHANGE FOR EARLIER SERIAL NUMBER EQUIPMENT.
13. A2R2 AND A2R3 SELECTED FROM RANGE BETWEEN 215-825 OHMS.

Figure 5-16. Coupler Control C-2698/SRA-22, Schematic Diagram

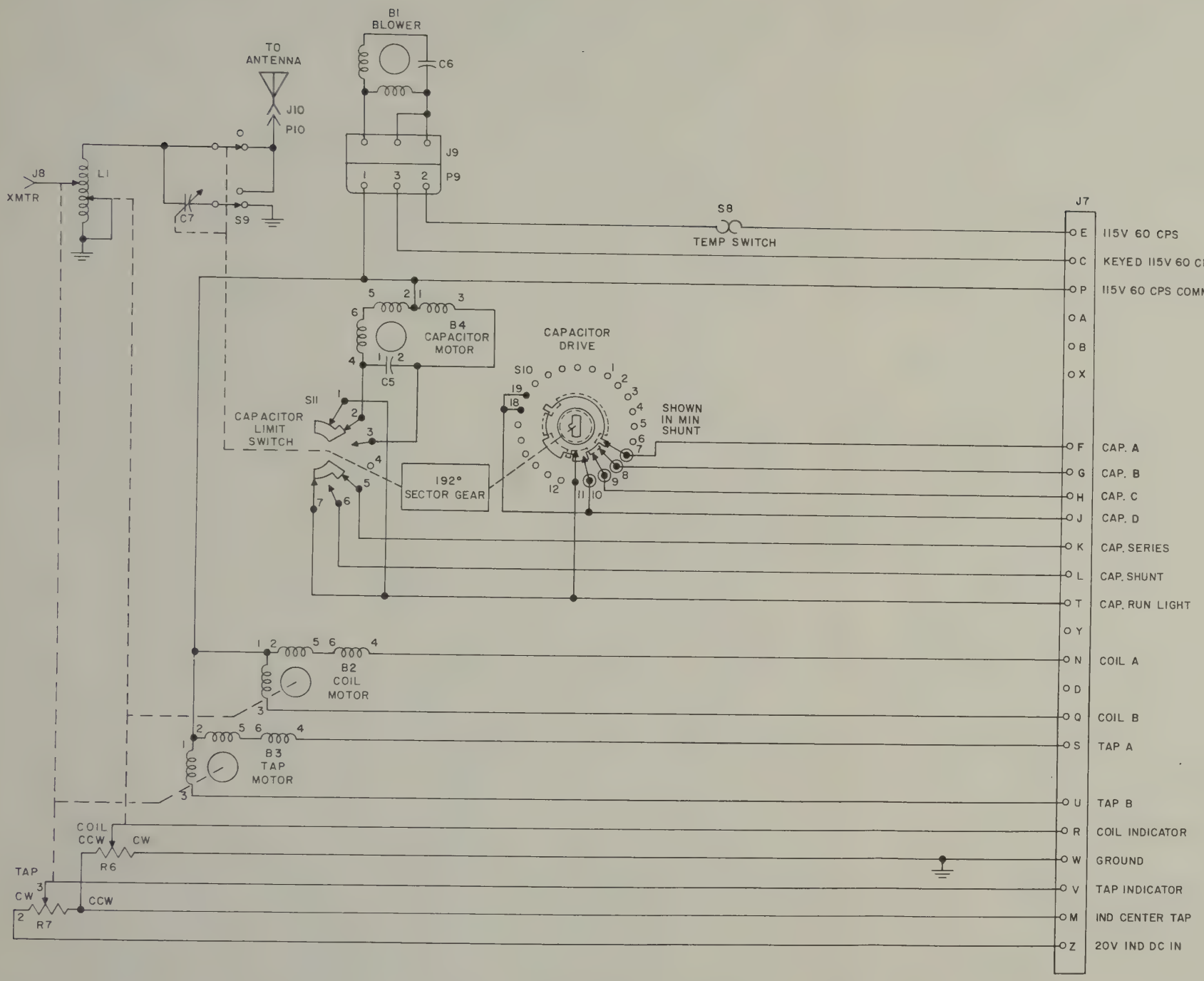


Figure 5-17. Antenna Coupler CU-714/SRA-22, Schematic Diagram

SECTION 6

PARTS LIST

6-1. INTRODUCTION.

Reference designations (such as circuit symbols, reference symbols, etc.) have been assigned to identify all maintenance parts of the equipment. They are included on drawings, diagrams and the parts list. The letters of a reference designation indicate the kind of part (generic group), such as resistor, amplifier, electron tubes, etc. The number differentiates between parts of the same generic group. Parts of the same major unit are prefixed with the same unit number (see table 6-1).

Sockets associated with a particular plug-in device, such as an electron tube or a fuse, are identified by a reference designation which includes the reference designation of the plug-in device. For example, the X prefix identifies the socket for fuse F7 and is designated XF7.

6-2. MAINTENANCE PARTS LIST.

Table 6-1 lists all of the major units and their replaceable maintenance parts. The parts of each major unit are grouped together. Column 1 lists the reference series of each major unit, followed by the reference designations of the parts in alphabetical and numerical order. Column 2 refers to the explanatory notes. Column 3 gives the name and describes the various parts. Complete information is given for all key parts (parts differing from any part previously listed in this table) and subkey parts (parts identical with a key part but appearing for the first time for a major unit). The description is omitted for succeeding duplicate parts; however, reference is made to the key part or subkey part for the data. Column 4 gives the functional location of the part in the equipment.

6-3. STOCK NUMBER IDENTIFICATION.

New Stock Number Identification Tables (SNIT's) issued by the Electronics Supply Office include Federal Stock Numbers and Source, Maintenance and Recoverability Codes. Therefore, reference shall be made to the SNIT for this information.

6-4. LIST OF MANUFACTURERS.

Table 6-2 lists manufacturers of parts used in the equipment. The first column includes the abbreviations used in table 6-1 to identify manufacturers.

TABLE 6-1. ANTENNA COUPLER GROUP AN/SRA-22, MAINTENANCE PARTS LIST

ANTENNA COUPLER CU-714/SRA-22

REF. DESIG.	NOTES	NAME AND DESCRIPTION	LOCATING FUNCTION
		COUPLER, GROUP, ANTENNA: AN/SRA-22; c/o antenna coupler control and antenna coupler Collins Radio Company part no. 522-1285-00	
Unit 1		COUPLER, ANTENNA: inductive-capacitive coupling; 2.0- to 30.0-mc range; 115 or 230 v ac, 47 to 63 cps, single phase operating power Collins Radio Company part no. 544-7293-00	
1B1		FAN, TUBE AXIAL: Induction Motors part no. BC2918B	Cooling
1B2		MOTOR CONTROL: servo 115 v ac, 60 cps ±5%; 3400 RPM at max power output two phase; John Oster Mfg. Co. part no. 18-5205-03 Collins part no. 229-0233-00	Cap. motor
1B3		MOTOR, CONTROL: same as 1B2	Coil motor
1B4		MOTOR, CONTROL: same as 1B2	Tap motor
1C1 thru 1C4		NOT USED	
1C5		CAPACITOR, FIXED, PAPER DIELECTRIC: 230 v a-c working voltage; 1.5 uf ±20%; Sprague Elect. type S8235	Cap. motor phase
1C6		CAPACITOR, FIXED, PAPER DIELECTRIC: 220 v a-c working voltage; 5 uf ±10%; Sprague Elect. Collins Radio Company part no. 930-0591-00	Blower phase
1C7		CAPACITOR, VARIABLE, VACUUM DIELECTRIC: 5 to 465 uuf; 10-kv peak at min capacity, 5-kv peak at max capacity; incl hardware; 2-5/16 in. dia by 5-23/32 in. lg; Collins Radio Company part no. 544-6186-002	Antenna tuning
1E1		STRIP, GROUND, SOLDERED: c/o nickel alloy contact, 0.187 in. dia by 0.140 in. lg; and beryllium copper 28 ga ground strip 5/8 in. w by 1.113 in. lg; Collins Radio Company part no. 543-9967-002	See figure 5-5 item 36
1E2		CONTACT ASSEMBLY, ELECTRICAL: c/o two silver contacts, 0.375 in. by 0.414 in. by 0.447 in.; Collins Radio Company part no. 543-9929-002	See figure 5-5 item 93

TABLE 6-1. ANTENNA COUPLER GROUP AN/SRA-22, MAINTENANCE PARTS LIST (Cont)

ANTENNA COUPLER CU-714/SRA-22

REF. DESIG.	NOTES	NAME AND DESCRIPTION	LOCATING FUNCTION
1E3		TERMINAL, LUG: beryllium copper, square tongue end; 0.015 in. by 1/4 in. by 15/32 in.; Collins Radio Company part no. 506-0962-002	See figure 5-5 item 106
1E4		CONTACT, ELECTRICAL: coin silver, 0.234 in. dia by 0.250 in. lg overall; undercut; Collins Radio Company part no. 543-9893-002	See figure 5-5 item 108
1E5		CONTACT, ELECTRICAL: silver impregnated graphite contact w/beryllium copper holder; Collins Radio Company part no. 544-0694-00	See figure 5-5 item 128
1E6		CONTACT, ELECTRICAL: silver impregnated graphite contact w/beryllium copper holder; Collins Radio Company part no. 544-0695-00	See figure 5-5 item 129
1E7		RIBBON, SILVER: 0.010 in. by 0.125 in. by 19 ft; for use as RF tuning coil; Collins Radio Company part no. 998-0026-00	See figure 5-5 item 144
1E8		CONTACT, ELECTRICAL: c/o bronze bracket w/ternary plated brass contact rivet; 5/16 in. by 0.625 in. by 1.062 in. approx overall; Collins Radio Company part no. 544-0077-002	See figure 5-5 item 166
1E9		SILKSCREEN: Collins Radio Company part no. 544-0105-00	See figure 5-5 item 181
1E10		CONTACT, ELECTRICAL: coin silver; 1/16 in. by 1/4 in. by 1-1/4 in. overall; tapped 4-40 each end; Collins Radio Company part no. 543-9956-002	See figure 5-5 item 216
1E11		CONTACT, ELECTRICAL: coin silver; 0.250 in. dia by 0.240 in. lg overall; undercut and tapped; Collins Radio Company part no. 543-9959-002	See figure 5-5 item 223
1E12		STRIP, GROUND: silver; 1/16 in. by 1/4 in. by 1-1/16 in.; Collins Radio Company part no. 543-9866-002	See figure 5-5 item 229
1E13		CONTACT H.V.: coin silver, hard temper; 0.062 in. dia hole by 0.032 in. deep; 0.156 in. h overall; Collins Radio Company part no. 543-9962-002	See figure 5-5 item 141
1E14		CONTACT ASSEMBLY, ELECTRICAL: c/o two contacts; silver 0.212 in. by 0.250 in. by 1.785 in.; Collins Radio Company part no. 543-9963-002	See figure 5-5 item 142
1E15		NOT USED	

TABLE 6-1. ANTENNA COUPLER GROUP AN/SRA-22, MAINTENANCE PARTS LIST (Cont)

ANTENNA COUPLER CU-714/SRA-22

REF. DESIG.	NOTES	NAME AND DESCRIPTION	LOCATING FUNCTION
1E16		CONTACT, ELECTRICAL: c/o bronze angle bracket w/ternary plated brass contact rivet; 1/2 in. by 0.593 in. by 0.930 in. approx overall; Collins Radio Company part no. 544-0079-002	See figure 5-5 item 165
1E17		INSULATOR, BOWL: round, dome, flanged, 2.687 in. lg by 5.250 in. dia; white glazed ceramic; General Ceramics part no. 1088-00	See figure 5-5 item 469
1H1		SHROUD, FRONT: glass cloth, epoxy coated; 1-5/32 in. h by 4-5/8 in. w by 6.359 in. lg; Collins Radio Company part no. 544-7299-002	See figure 5-5 item 5
1H2		SHROUD, OUTLET: glass cloth, epoxy coated; 1/2 in. h by 3-3/32 in. w by 6.375 in. lg; Collins Radio Company part no. 544-7298-002	See figure 5-5 item 10
1H3		SHROUD, REAR: glass cloth, epoxy coated; 1/2 in. h, 2.187 in. w radius, 6.375 in. lg; Collins Radio Company part no. 544-7297-002	See figure 5-5 item 13
1H4		SHROUD, BOTTOM: glass cloth, epoxy coated; 1/2 in. h by 5.875 in. w by 6.375 in. lg; Collins Radio Company part no. 544-7358-003	See figure 5-5 item 15
1H5		PLATE-COIL, BUSHING NO. 1: phenolic, 1/4 in. w, 2.650 in. ID, 4-3/16 in. OD; Collins Radio Company part no. 544-7304-002	See figure 5-5 item 17
1H6		PLATE-COIL, BUSHING NO. 2: phenolic, 1/4 in. w, 2.650 in. ID, 4-3/16 in. OD; Collins Radio Company part no. 544-7305-002	See figure 5-5 item 18
1H7		CORE, ADJUSTABLE TUNING: powdered iron core; 2.250 in. ID by 4.500 in. lg; one end drilled 21/64 in. dia by 5/8 in. lg, other end drilled 1-5/16 in. dia by 2-1/8 in. lg; Collins Radio Company part no. 553-4440-003	See figure 5-5 item 28
1H8		NUT, SLEEVE: aluminum; 1/4 in. hex by 1.375 in. lg overall; tapped 6-32 NC-2B 7/16 in. deep each end; Collins Radio Company part no. 543-9971-002	See figure 5-5 item 29
1H9		NUT, SLEEVE: same as 1H8	See figure 5-5 item 31

TABLE 6-1. ANTENNA COUPLER GROUP AN/SRA-22, MAINTENANCE PARTS LIST (Cont)

ANTENNA COUPLER CU-714/SRA-22

REF. DESIG.	NOTES	NAME AND DESCRIPTION	LOCATING FUNCTION
1H10		SPACER, SLEEVE: plastic, 0.090 in. ID, 0.125 in. OD, 0.062 in. lg undercut to 0.156 in. dia; Collins Radio Company part no. 543-9987-002	See figure 5-5 item 79
1H11		RING, RETAINING: aluminum; 90 degree semicircle; 0.050 in. by 0.687 in. by 0.687 in.; Collins Radio Company part no. 543-6951-002	See figure 5-5 item 89
1H12		WASHER, FLAT: bronze, 0.375 in. ID, 0.937 in. OD, 0.025 in. thk; Collins Radio Company part no. 543-5644-003	See figure 5-5 item 95
1H13		WASHER, SHOULDERED: phosphor bronze, 0.375 in. ID, 0.937 in. OD, 0.070 in. thk overall; Collins Radio Company part no. 544-0049-002	See figure 5-5 item 96
1H14		SPACER, SLEEVE: silver graphite 0.253 in. ID, 0.3145 in. OD, 0.187 in. lg; Collins Radio Company part no. 544-0050-00	See figure 5-5 item 98
1H15		CONTACT, ELECTRICAL: coin silver, 3.877 in. ID, 4.085 in. OD, 0.062 in. thk; Collins Radio Company part no. 544-0667-002	See figure 5-5 item 130
1H16		POST: brass, 0.087 in. ID, 0.250 in. OD, 0.102 in. lg; undercut; Collins Radio Company part no. 544-2683-002	See figure 5-5 item 131
1H17		POST: brass, 0.087 in. ID, 0.250 in. OD, 0.141 in. lg; undercut; Collins Radio Company part no. 544-2684-002	See figure 5-5 item 132
1H18		POST: brass, 0.087 in. ID, 0.250 in. OD, 0.206 in. lg; undercut; Collins Radio Company part no. 544-2686-002	See figure 5-5 item 133
1H19		POST: brass, 0.087 in. ID, 0.250 in. OD, 0.187 in. lg; undercut; Collins Radio Company part no. 544-2685-002	See figure 5-5 item 134
1H20		PIN, STOP: brass, 0.250 in. dia by 0.343 in. lg; undercut, grooved and tapped 4-40; Collins Radio Company part no. 544-2682-002	See figure 5-5 item 137
1H21		NOT USED	
1H22		WASHER, FLAT: brass, 0.376 in. ID, 0.750 in. OD, 0.064 in. thk; Collins Radio Company part no. 543-5642-003	See figure 5-5 item 185

TABLE 6-1. ANTENNA COUPLER GROUP AN/SRA-22, MAINTENANCE PARTS LIST (Cont)

ANTENNA COUPLER CU-714/SRA-22

REF. DESIG. NOTES	NAME AND DESCRIPTION	LOCATING FUNCTION
1H23	INSULATOR, STANDOFF: Teflon; incl one 4-40 brass insert ea end; 1/4 in. dia by 2.500 in. lg; Collins Radio Company part no. 544-0096-002	See figure 5-5 item 189
1H24	SPACER, SLEEVE: same as 1H10	See figure 5-5 item 191
1H25	SPACER, SLEEVE: plastic, 0.090 in. ID, 0.125 in. OD, 0.570 in. lg; undercut to 0.156 in. dia; Collins Radio Company part no. 543-9986-002	See figure 5-5 item 193
1H26	NOT USED	
1H27	STUD, SWITCH: stainless steel, 0.086 in. dia by 1-1/4 in. lg; tapped 2-56 NC-2A both ends 3/8 in. deep; Collins Radio Company part no. 543-9988-002	See figure 5-5 item 195
1H28	NUT, PLAIN, ROUND: brass, 0.219 in. dia by 0.170 in. h overall; 4-40 NC-2B thd; Collins Radio Company part no. 544-0043-002	See figure 5-5 item 196
1H29	WASHER, NONMETALLIC: Teflon; 0.187 in. ID, 5/16 in. OD, 0.062 in. thk; Collins Radio Company part no. 543-5649-003	See figure 5-5 item 199
1H30	SPACER, SLEEVE: aluminum, 0.113 in. ID, 0.187 in. OD, 0.178 in. lg; Collins Radio Company part no. 543-9848-002	See figure 5-5 item 199A
1H31	WASHER, FLAT: round, shim brass, 0.255 in. ID, 0.437 in. OD, 0.003 in. thk; Collins Radio Company part no. 500-1086-003	See figure 5-5 item 207
1H32	WASHER, FLAT: same as 1H31	See figure 5-5 item 208
1H33	WASHER, FLAT: same as 1H31	See figure 5-5 item 209
1H34	NUT, PLAIN, ROUND: same as 1H28	See figure 5-5 item 210
1H35	WASHER, NONMETALLIC: same as 1H29	See figure 5-5 item 213
1H36	SPACER, SLEEVE: same as 1H30	See figure 5-5 item 217
1H37	WASHER, NONMETALLIC: same as 1H29	See figure 5-5 item 222

TABLE 6-1. ANTENNA COUPLER GROUP AN/SRA-22, MAINTENANCE PARTS LIST (Cont)

ANTENNA COUPLER CU-714/SRA-22

REF. DESIG.	NOTES	NAME AND DESCRIPTION	LOCATING FUNCTION
1H38		INSULATOR, STANDOFF: Teflon; 1/4 in. dia by 0.875 in. lg; tapped 4-40 NC-2B, 0.220 in. deep ea end; Collins Radio Company part no. 544-0056-002	See figure 5-5 item 232
1H39		WASHER, NONMETALLIC: same as 1H29	See figure 5-5 item 204
1H40		SPACER, SLEEVE: same as 1H30	See figure 5-5 item 205
1H41		NUT, SPECIAL: brass, 1/4 in. dia, 0.128 in. h, 4-40 NC-2B thd ID	See figure 5-5 item 243
1H42		BLOCK, MOUNTING: aluminum; 1/2 in. by 0.671 in. by 1-1/4 in.; Collins Radio Company part no. 543-9881-002	See figure 5-5 item 309
1H43		POST, MOUNTING: aluminum; 1/2 in. dia by 0.421 in. lg; undercut, tapped 8-32; Collins Radio Company part no. 544-0091-002	See figure 5-5 item 299
1H44		POST, MOUNTING: same as 1H43	See figure 5-5 item 306
1H45		POST, MOUNTING: same as 1H43	See figure 5-5 item 307
1H46		POST, HIGH VOLTAGE: c/o 1 post, 2 inserts and 2 discs; 0.375 in. dia by 0.750 in. lg overall; tapped 6-32 in. thd; Collins Radio Company part no. 544-2677-003	See figure 5-5 item 319
1H47		SCREW, ANCHOR: stainless steel; cross recessed flat countersunk head; 8-32 thd, undercut, 0.500 in. lg overall; Collins Radio Company part no. 543-9905-002	See figure 5-5 item 321
1H48		POST, MOUNTING: same as 1H43	See figure 5-5 item 342
1H49		WASHER, FLAT: brass, 0.265 in. ID, 1/2 in. OD, 0.010 in. thk; Collins Radio Company part no. 543-5650-003	See figure 5-5 item 378
1H50		SHAFT: stainless steel; 0.2497 in. dia by 0.827 in. lg; one end undercut and tapped 4-40 NC-2B, 1/4 in. deep; Collins Radio Company part no. 543-9993-002	See figure 5-5 item 385
1H51		PIN, STOP: stainless steel, 0.625 in. dia by 0.500 in. lg; incl flange; four tapped 4-40 holes, spaced 90 degrees apart on 0.406 in. dia bolt circle; Collins Radio Company part no. 544-0022-002	See figure 5-5 item 391

TABLE 6-1. ANTENNA COUPLER GROUP AN/SRA-22, MAINTENANCE PARTS LIST (Cont)

ANTENNA COUPLER CU-714/SRA-22

REF. DESIG.	NOTES	NAME AND DESCRIPTION	LOCATING FUNCTION
1H52		SPACER: aluminum tube, 0.058 in. thk material; 5/8 in. OD, 0.125 in. thk; Collins Radio Company part no. 545-7665-002	See figure 5-5 item 435
1H53		PIN, LOCATING: steel, 3/8 in. hex; thd 1/4-20 UNC-2A, 3/4 in. deep, 1-11/16 in. lg overall; Collins Radio Company part no. 544-7306-002	See figure 5-5 item 2
1H54		POST, HIGH VOLTAGE: Teflon rod 1/4 in. dia, 2/343 in. lg; thd one end 6-32 NC-2B, 1/2 in. deep, other 4-40 NC-2B, 1/4 in. deep; Collins Radio Company part no. 544-7307-002	See figure 5-5 item 465
1H55		WASHER, FLAT: stainless steel, 0.192 in. ID, 3/8 in. OD, 0.062 in. thk; Collins Radio Company part no. 500-1122-003	See figure 5-5 item 466A
1H56		WASHER, FLAT: synthetic rubber and cork; 1/16 in. thk, 0.250 in. ID, 13/16 in. OD; Collins Radio Company part no. 543-5584-003	See figure 5-5 item 473
1H57		WASHER, FLAT: synthetic rubber and cork, 1/16 in. thk, 0.562 in. ID, 7/8 in. OD; Collins Radio Company part no. 543-5585-003	See figure 5-5 item 474
1H58		SCREW, CORE: brass, 1/2 in. hex head, thd 5/16 -18 UNC-2A, 5/8 in. deep, 2-5/8 in. lg overall; Collins Radio Company part no. 543-9867-002	See figure 5-5 item 25
1H59		SCREW, CAPTIVE: steel, pan head, cross recess drive, 5/8 in. lg; Collins Radio Company part no. 544-7337-002	See figure 5-5 item 1
1J1 thru 1J6		NOT USED	
1J7		CONNECTOR, RECEPTACLE, ELECTRICAL: low loss plastic dielectric; MIL-C-5015 and 10432-28P, MS3102E-24-28P	Main power connector
1J8		CONNECTOR, RECEPTACLE, ELECTRICAL: low loss plastic dielectric; Amphenol part no. 82-811	Transmitter connector
1J9		CONNECTOR, RECEPTACLE, ELECTRICAL: low loss plastic dielectric; Cannon Elect. part no. DE-9P	Blower connector

TABLE 6-1. ANTENNA COUPLER GROUP AN/SRA-22, MAINTENANCE PARTS LIST (Cont)

ANTENNA COUPLER CU-714/SRA-22

REF. DESIG.	NOTES	NAME AND DESCRIPTION	LOCATING FUNCTION
1J10		CONNECTOR, RECEPTACLE, ELECTRICAL: brass; 1 rd female contact; straight shape; incl strap; Collins Radio Company part no. 544-7314-002	Antenna input
1L1		FORM, COIL: ceramic; Collins Radio Company part no. 544-0112-003	H-v drum
1MP1		CAM, STOP: aluminum; 0.250 in. by 0.870 in. by 0.875 in. approx overall; Collins Radio Company part no. 543-9823-002	
1MP2		GEAR, SPUR: Teflon; 52 teeth, 20 degree pressure angle, 0.125 in. w face, 0.1687 in. dia by 0.271 in. lg; Collins Radio Company part no. 544-0009-002	C7 drive
1MP3		GEAR, SPUR: Teflon; 20 teeth, 20 degree pressure angle, 0.156 in. w face, 0.687 in. dia by 0.312 in. lg; Collins Radio Company part no. 544-0010-002	C7 shaft
1MP4		GEAR ASSY: 1 steel gear w/68 teeth, 0.0937 in. w face, 1 gearshaft w/30 teeth, 0.141 in. w face; 0.729 in. dia by 1.250 in. lg; Collins Radio Company part no. 544-0032-002	Tap drive
1MP5		GEAR, ASSEMBLY: stainless steel; c/o gearshaft w/24 teeth, 0.141 in. w face & spur gear with 30 teeth, 0.125 in. w face, 20 degree pressure angle, ea complement; 0.333 in. dia by 0.750 in. lg overall; Collins Radio Company part no. 543-9833-002	Cap idler
1MP6		GEARSHAFT, SPUR: stainless steel; 24 teeth, 20 degree pressure angle, 0.375 in. w face; 0.406 in. dia by 0.750 in. lg overall; Collins Radio Company part no. 543-9834-002	Cap idler
1MP7		GEARSHAFT ASSY: stainless steel; 30 teeth, 20 degree pressure angle, 0.090 in. w face, 0.333 in. dia by 1.265 in. lg; incl shaft; Collins Radio Company part no. 544-7328-002	Coil pot. drive
1MP8		COUPLING, SHAFT, RIGID: aluminum; 3/8 in. dia by 1/2 in. lg; Collins Radio Company part no. 544-7323-002	Resistor shaft coupler

TABLE 6-1. ANTENNA COUPLER GROUP AN/SRA-22, MAINTENANCE PARTS LIST (Cont)

ANTENNA COUPLER CU-714/SRA-22

REF. DESIG.	NOTES	NAME AND DESCRIPTION	LOCATING FUNCTION
1MP9		COUPLING, SHAFT, RIGID: same as 1MP8	Resistor shaft coupler
1MP10		GEARSHAFT, SPUR: stainless steel; 30 teeth, 20 degree pressure angle, 0.156 in. w face, 0.3125 in. pitch dia. 1.500 in. lg overall; Collins Radio Company part no. 543-9869-002	Coil idler
1MP11		GEAR-SHAFT ASSY: c/o 1 steel sector gear w/112 teeth, 20 degree pressure angle, 0.062 in. w face & 1 steel shaft 1.781 in. dia by 1.406 in. lg; Collins Radio Company part no. 544-9464-003	Cap limit switch rotor
1MP12		SHAFT: stainless steel; 0.78125 in. by 0.8125 in. by 2.093 in., incl 1 pin and 1 switch arm; Collins Radio Company part no. 543-9889-002	H-v rotor shaft
1MP13		GEAR ASSY: c/o 2 stainless steel gears, 1 w/100 teeth, 0.091 in. w face, other w/19 teeth, 0.140 in. w face, ea w/20 degree pressure angle; 1.062 in. dia by 0.718 in. lg; Collins Radio Company part no. 543-9891-002	Coil idler
1MP14		GEAR, SPUR: aluminum; 64 teeth, 20 degree pressure angle, 0.062 in. w face, 0.787 in. dia by 0.625 in. lg; Collins Radio Company part no. 544-7324-002	Coil idler
1MP15		GEAR-SHAFT ASSY: c/o 1 aluminum gear w/48 teeth, 20 degree pressure angle, 0.091 in. w face, 1 shaft & 1 hub; 0.520 in. dia by 0.718 in. lg; Collins Radio Company part no. 543-9921-002	Coil idler
1MP16		GEAR ASSY: c/o 1 AL gear w/84 teeth and 1 SST gearshaft w/18 teeth; Collins Radio Company part no. 543-9931-002	Tap idler
1MP17		GEAR ASSY: c/o 1 aluminum gear w/ 96 teeth, 1 in. pitch dia, 0.091 in. w face & 1 steel spur gearshaft w/18 teeth, 0.1875 in. pitch dia, 0.125 in. w face, ea w/20 degree pressure angle, 96 diametral pitch; 1.020 in. dia by 1 in. lg overall; Collins Radio Company part no. 544-7333-002	Tap pot. drive

TABLE 6-1. ANTENNA COUPLER GROUP AN/SRA-22, MAINTENANCE PARTS LIST (Cont)

ANTENNA COUPLER CU-714/SRA-22

REF. DESIG.	NOTES	NAME AND DESCRIPTION	LOCATING FUNCTION
1MP18		GEAR-CAM ASSY: c/o aluminum gear w/124 teeth, 20 degree pressure angle, 0.062 in. w face & stainless steel hub, tapped for securing; 1.312 in. dia by 0.406 in. lg; Collins Radio Company part no. 543-9933-002	Tap idler
1MP19		GEAR ASSY: 1 aluminum gear w/42 teeth, 0.091 in. w face, 1 steel gear-shaft w/20 teeth, 0.156 in. w face; 20 degree pressure angle ea; 0.4562 in. dia by 0.655 in. lg overall; Collins Radio Company part no. 543-9938-002	Coil idler
1MP20		GEAR ASSY: 1 steel gearshaft w/20 teeth, 0.156 in. w face, 1 aluminum gear w/49 teeth, 0.091 in. w face; 20 degree pressure angle ea; 0.530 in. dia by 0.655 in. lg; Collins Radio Company part no. 543-9939-002	Coil idler
1MP21		GEAR ASSY: 1 steel gearshaft w/20 teeth, 0.156 in. w face, 1 aluminum gear w/54 teeth, 0.091 in. w face; 20 degree pressure angle ea; 0.583 in. dia by 0.655 in. lg; Collins Radio Company part no. 543-9940-002	Coil idler
1MP22		GEAR-SHAFT ASSY: c/o 1 steel gear w/99 teeth, 0.093 in. w face, 20 degree pressure angle & 1 shaft; 1.578 in. dia by 1.187 in. lg; Collins Radio Company part no. 543-9943-002	Coil drive
1MP23		GEAR ASSY: c/o 1 steel gearshaft w/18 teeth, 0.156 in. w face, 1 gear w/60 teeth, 0.091 in. w face, ea w/20 degree pressure angle; 0.645 in. dia by 0.765 in. lg; Collins Radio Company part no. 543-9949-002	Cap idler
1MP24		GEAR ASSY: c/o 1 steel gear w/20 teeth, 0.188 in. w face, 1 plastic gear w/70 teeth, 3/32 in. w face ea w/20 degree pressure angle; 1.500 in. dia by 0.765 in. lg; Collins Radio Company part no. 543-9950-002	Cap idler
1MP25		GEAR ASSY: c/o 1 steel gearshaft w/24 teeth, 0.156 in. w face, & 1 gear w/81 teeth, 0.064 in. w face, ea w/20 degree pressure angle; 1.282 in. dia by 0.765 in. lg; Collins Radio Company part no. 543-9952-002	Cap idler

TABLE 6-1. ANTENNA COUPLER GROUP AN/SRA-22, MAINTENANCE PARTS LIST (Cont)

ANTENNA COUPLER CU-714/SRA-22

REF. DESIG.	NOTES	NAME AND DESCRIPTION	LOCATING FUNCTION
1MP26		GEAR-SHAFT ASSY: c/o stainless steel shaft & gear w/35 teeth, 20 degree pressure angle, 0.078 in. w face; 0.547 in. pitch dia by 0.360 in lg overall; Collins Radio Company part no. 543-9851-002	Cap idler
1MP27		GEAR-SHAFT ASSY: c/o 1 plastic gear w/40 teeth, 20 degree pressure angle, 1/8 in. w face, 1 steel shaft & hub; 1.312 in. dia by 0.718 in. lg; Collins Radio Company part no. 543-9951-002	Cap idler
1MP28		PIN, STRAIGHT, HEADLESS: stainless steel; 0.2497 in. dia by 0.765 in. lg; Collins Radio Company part no. 544-7342-002	Shaft drive
1MP29		GEAR, SPUR: Teflon; 40 teeth, 20 degree pressure angle, 0.187 in. w face, 1.312 in. dia by 0.375 in. lg; Collins Radio Company part no. 544-0011-002	Coil drive
1MP30		GEAR ASSY: 1 aluminum gear w/56 teeth, 0.090 in. w face, 1 steel gearshaft w/18 teeth, 0.156 in. w face, 20 degree pressure angle ea; 0.0604 in. dia by 0.656 in. lg; Collins Radio Company part no. 543-9980-002	Tap idler
1MP31		BEARING, BALL, ANNULAR: ground; single row; radial; w/loading groove, self-contained; both rings flush, 0.1250 in. bore dia; flanged outer ring type, 0.2500 in. OD ring, 0.296 in. OD flange, 0.031 in w flange; 2 steel shields; ABEC-5 tolerance; New Hamp. Ball Bearing part no. SFR144PPK28	Tap drive
1MP32		BEARING, BALL, ANNULAR: same as 1MP31	Tap drive
1MP33		BEARING, BALL, ANNULAR: same as 1MP31	Tap drive
1MP34		BEARING, BALL, ANNULAR: same as 1MP31	Tap drive
1MP35		BEARING, BALL, ANNULAR: same as 1MP31	Coil drive
1MP36		BEARING, BALL, ANNULAR: same as 1MP31	Coil drive
1MP37		BEARING, BALL, ANNULAR: single row; radial; 0.422 in. OD by 0.1250 in. lg; New Hamp. Ball Bearing part no. SFR168PPK28	Tap drive

TABLE 6-1. ANTENNA COUPLER GROUP AN/SRA-22, MAINTENANCE PARTS LIST (Cont)

ANTENNA COUPLER CU-714/SRA-22

REF. DESIG.	NOTES	NAME AND DESCRIPTION	LOCATING FUNCTION
1MP38		BEARING, BALL, ANNULAR: same as 1MP37	Tap drive
1MP39		BEARING, BALL, ANNULAR: same as 1MP37	Tap drive
1MP40		BEARING, BALL, ANNULAR: same as 1MP37	Tap drive
1MP41		BEARING, BALL, ANNULAR: same as 1MP37	Coil drive
1MP42		BEARING, BALL, ANNULAR: same as 1MP37	Coil drive
1MP43		BEARING, BALL, ANNULAR: same as 1MP37	Coil drive
1MP44		BEARING, BALL, ANNULAR: same as 1MP37	Coil drive
1MP45		BEARING, BALL, ANNULAR: same as 1MP37	Cap drive
1MP46		GEAR, SPUR: plastic; 136 teeth, 20 degree pressure angle, 32 diametral pitch, 4.250 in. pitch dia, 0.125 in. w face; Collins Radio Company part no. 544-2687-002	Tap assembly driven gear
1MP47		BEARING, SLEEVE: bronze; flanged; 0.156 in. ID, 1/4 in. OD, 5/32 in. lg overall; Amplex Div. Chrysler Corp. part no. F-200-2	
1MP48		GEAR, SPUR: plastic; 80 teeth, 20 degree pressure angle, 32 diametral pitch, 2.500 in. pitch dia, 0.125 in. w face; 2.562 in. dia by 0.218 in. lg; Collins Radio Company part no. 544-0623-002	H-v drum assembly driven gear
1MP49		SHAFT: aluminum; 0.2497 in. dia by 2.405 in. lg overall; tapped 6-32, 1/4 in. deep one end; incl silver contact; Collins Radio Company part no. 543-9865-002	L-v drum
1MP50		GEAR-SHAFT ASSEMBLY: aluminum gear w/18 teeth, 20 degree pressure angle, 32 diametral pitch, 0.562 in. pitch dia, 5.125 in. w face, aluminum shaft, 1 support and hardware; 0.625 in. dia by 6.438 in. lg overall; Collins Radio Company part no. 543-9968-002	Tap drive
1MP51		SHAFT: brass; chrome plated; 0.250 in. dia by 6-5/16 in. lg; Collins Radio Company part no. 543-9856-002	Center tap

TABLE 6-1. ANTENNA COUPLER GROUP AN/SRA-22, MAINTENANCE PARTS LIST (Cont)

ANTENNA COUPLER CU-714/SRA-22

REF. DESIG.	NOTES	NAME AND DESCRIPTION	LOCATING FUNCTION
1MP52		GASKET: rubber; 8.734 in. ID, 9.012 in. OD, 0.139 in. thk; Parker Appliance part no. 47-741, 2-269	Seal
1MP53		GASKET, COVER: aluminum or aluminum casting alloy; 0.175 in. by 7 in. by 8 in.; Collins Radio Company part no. 544-7372-003	See figure 5-5 item 2
1MP54		GASKET: plain, rubber, 0.031 in. by 1.750 in. by 1.750 in.; 1.500 in. dia aperture; Bendix part no. 10-40450-22	See figure 5-5 item 42
1MP55		BEARING, BALL, ANNULAR: stainless steel; radial, flanged, single row; 0.250 in. dia bore; 0.422 in. OD by 0.125 in. w overall; Collins Radio Company part no. 309-0671-00	See figure 5-5 item 64
1MP56		BEARING, BALL, ANNULAR: same as 1MP55	See figure 5-5 item 65
1MP57		SUPPORT, ROLLER: stainless steel; angle shaped; incl 2 pins; 0.520 in. by 0.620 in. by 0.750 in. approx overall; Collins Radio Company part no. 543-9937-002	See figure 5-5 item 67
1MP58		ROLLER, COIL: plastic roller w/bronze bearing; 0.1875 in. ID, 0.375 in. OD, 0.377 in. lg overall; Collins Radio Company part no. 543-9896-002	See figure 5-5 item 68
1MP59		COLLAR, SHAFT: brass, 0.250 in. ID, 0.437 in. OD, 0.3125 in. thk; Collins Radio Company part no. 544-2667-002	See figure 5-5 item 74
1MP60		SPRING, HELICAL, COMPRESSION: phosphor bronze wire 0.0126 in. dia; 0.115 in. OD, 3/8 in. free lg; 9 active coils; Collins Radio Company part no. 544-0054-002	See figure 5-5 item 97
1MP61		GEAR, SPUR: plastic; 80 teeth, 20 degree pressure angle, 2.500 in. pitch dia; 1/8 in. w face; Collins Radio Company part no. 543-9878-002	See figure 5-5 item 102
1MP62		SPRING, HELICAL, TORSION: stainless steel wire 0.041 in. dia; 30 rh coils; 5/16 in. ID by 1-7/8 in. free lg; Collins Radio Company part no. 543-9908-002	See figure 5-5 item 115
1MP63		SHAFT: aluminum; 0.2495 in. dia by 5.437 in. lg; Collins Radio Company part no. 543-9876-002	See figure 5-5 item 118

TABLE 6-1. ANTENNA COUPLER GROUP AN/SRA-22, MAINTENANCE PARTS LIST (Cont)

ANTENNA COUPLER CU-714/SRA-22

REF. DESIG.	NOTES	NAME AND DESCRIPTION	LOCATING FUNCTION
1MP64		BEARING, SLEEVE: bronze, flanged; 0.250 in. ID, 0.468 in. OD, 0.171 in. lg; Collins Radio Company part no. 543-9840-002	See figure 5-5 item 119
1MP65		FLANGE, BOLTING: aluminum, 0.921 in. dia by 0.687 in. lg; undercut; 0.250 in. ID for mtg; Collins Radio Company part no. 543-2689-002	See figure 5-5 item 149
1MP66		SHAFT, OUTPUT: aluminum, 0.2497 in. OD, 0.220 in. dia center groove, 2-5/16 in. lg overall; tapped; Collins Radio Company part no. 544-2669-002	See figure 5-5 item 151
1MP67		GEAR, SPUR: Teflon; 42 teeth, 20 degree pressure angle, 1.312 in. pitch dia, 0.156 in. w face; Collins Radio Company part no. 544-0008-002	See figure 5-5 item 179
1MP68		SPRING, HELICAL, EXTENSION: stainless steel wire 0.016 in. dia, 7/64 in. OD, 1/2 in. free lg; 24 active coils; Collins Radio Company part no. 543-9957-002	See figure 5-5 item 259
1MP69		SPRING, HELICAL, EXTENSION: steel wire 0.026 in. dia; 0.200 in. dia by 0.645 in. lg overall; 9 active coils; Collins Radio Company part no. 544-0080-002	See figure 5-5 item 303
1MP70		BEARING: bronze, 0.171 in. w by 0.250 in. ID by 0.468 in. OD; Collins Radio Company part no. 543-9840-002	See figure 5-5 item 322
1MP71		BEARING, SLEEVE: bronze; flanged; 0.125 in. ID, 0.344 in. OD, 0.171 in. lg overall; Collins Radio Company part no. 543-9839-002	See figure 5-5 item 323
1MP72		BEARING, SLEEVE: same as 1MP71	See figure 5-5 item 324
1MP73		BEARING, SLEEVE: same as 1MP71	See figure 5-5 item 325
1MP74		BEARING, SLEEVE: same as 1MP71	See figure 5-5 item 326
1MP75		BEARING: same as 1MP70	See figure 5-5 item 327
1MP76		BEARING, BALL, ANNULAR: same as 1MP31	See figure 5-5 item 331
1MP77		BEARING, SLEEVE: same as 1MP71	See figure 5-5 item 334

TABLE 6-1. ANTENNA COUPLER GROUP AN/SRA-22, MAINTENANCE PARTS LIST (Cont)

ANTENNA COUPLER CU-714/SRA-22

REF. DESIG.	NOTES	NAME AND DESCRIPTION	LOCATING FUNCTION
1MP78		BEARING, BALL, ANNULAR: same as 1MP31	See figure 5-5 item 337
1MP79		BEARING: same as 1MP70	See figure 5-5 item 338
1MP80		BEARING, SLEEVE: bronze, 0.125 in. ID, 0.312 in. OD, flatted one side to 0.281 in. w; 0.171 in. lg overall; flanged; Collins Radio Company part no. 543-9830-002	See figure 5-5 item 339
1MP81		BEARING, SLEEVE: same as 1MP71	See figure 5-5 item 340
1MP82		BEARING, SLEEVE: same as 1MP71	See figure 5-5 item 341
1MP83		BEARING, SLEEVE: same as 1MP71	See figure 5-5 item 343
1MP84		BEARING: same as 1MP70	See figure 5-5 item 344
1MP85		BEARING: same as 1MP70	See figure 5-5 item 345
1MP86		SPRING, HELICAL, EXTENSION: same as 1MP68	See figure 5-5 item 387
1MP87		BEARING: same as 1MP70	See figure 5-5 item 393
1MP88		BEARING: same as 1MP70	See figure 5-5 item 395
1MP89		BEARING, BALL, ANNULAR: same as 1MP31	See figure 5-5 item 397
1MP90		BEARING, SLEEVE: same as 1MP71	See figure 5-5 item 398
1MP91		BEARING, SLEEVE: same as 1MP71	See figure 5-5 item 399
1MP92		BEARING, SLEEVE: same as 1MP71	See figure 5-5 item 400
1MP93		BEARING, SLEEVE: same as 1MP71	See figure 5-5 item 401
1MP94		BEARING, SLEEVE: same as 1MP71	See figure 5-5 item 403
1MP95		BEARING: same as 1MP70	See figure 5-5 item 408
1MP96		NOT USED	
1MP97		BEARING, SLEEVE: same as 1MP71	See figure 5-5 item 410
1MP98		BEARING, SLEEVE: same as 1MP80	See figure 5-5 item 411
1MP99		BEARING, SLEEVE: same as 1MP71	See figure 5-5 item 412

TABLE 6-1. ANTENNA COUPLER GROUP AN/SRA-22, MAINTENANCE PARTS LIST (Cont)

ANTENNA COUPLER CU-714/SRA-22

REF. DESIG.	NOTES	NAME AND DESCRIPTION	LOCATING FUNCTION
1MP100		BEARING, SLEEVE: same as 1MP71	See figure 5-5 item 413
1MP101		BEARING: same as 1MP70	See figure 5-5 item 415
1MP102		BEARING: same as 1MP70	See figure 5-5 item 416
1MP103		FEEDTHRU ANTENNA: brass, 7/8 in. OD, 3-3/16 in. lg; thd one end 1-4/28 NF-2A, other end 4-40 NC-2B, 1/4 in. deep; Collins Radio Company part no. 544-7309-002	See figure 5-5 item 476
1MP104		BLOWER, FELT: felt 0.462 to 0.538 in. thk; 2-3/4 in. by 2-3/4 in.; Collins Radio Company part no. 544-7319-002	See figure 5-5 item 449
1MP105		GASKET: cork and rubber composition, 0.062 in. thk, 3-3/4 in. ID, 5-1/4 in. OD, Collins Radio Company part no. 543-3865-002	See figure 5-5 item 470
1MP106		WASHER, FLAT: brass, 1/16 in. thk, 0.250 in. ID, 13/16 in. OD; Collins Radio Company part no. 544-5583-003	See figure 5-5 item 475
1MP107		DUCT, FELT: felt 0.056 to 0.070 in. thk, 3-1/8 in. w by 6-11/16 in. lg; Collins Radio Company part no. 544-7322-002	See figure 5-5 item 478
1MP108		COVER, FRONT: aluminum casting, 1-15/16 in. by 7 in. by 8 in.; incl 31 mtg holes; Collins Radio Company part no. 544-7392-002	See figure 5-5 item 49
1MP109		SUPPORT, CENTER TAP: aluminum, 5/16 in. by 7/16 in. by 1 in.; 0.250 in. ID for mtg; Collins Radio Company part no. 543-9880-002	See figure 5-5 item 63
1MP110		PLATE, END: plastic, 1/4 in. thk, 5.875 in. w by 6.875 in. lg; incls 39 mtg holes; Collins Radio Company part no. 544-7373-004	See figure 5-5 item 71
1MP111		HOUSING: aluminum; 0.750 in. hex by 9/16 in. lg; undercut and grooved; Collins Radio Company part no. 544-0029-002	See figure 5-5 item 99
1MP112		HUB, GEAR: stainless steel; incl gear flange and stop pin, 0.875 in. by 1.234 in. by 1.250 in.; Collins Radio Company part no. 543-9902-002	See figure 5-5 item 103

TABLE 6-1. ANTENNA COUPLER GROUP AN/SRA-22, MAINTENANCE PARTS LIST (Cont)

ANTENNA COUPLER CU-714/SRA-22

REF. DESIG.	NOTES	NAME AND DESCRIPTION	LOCATING FUNCTION
1MP113		END PLATE, DRUM: aluminum, 2.435 in. dia by 0.500 in. thk; c/o 1 bearing, 1 contact; Collins Radio Company part no. 543-9903-002	See figure 5-5 item 109
1MP114		SUPPORT, SPRING: aluminum; 0.250 in. ID, 3/4 in. OD, 0.281 in. lg; undercut; Collins Radio Company part no. 543-9884-002	See figure 5-5 item 117
1MP115		PLATE, DRUM END: aluminum; 2.435 in. dia by 0.250 in. lg; 0.375 in. ID for mtg; Collins Radio Company part no. 543-9858-002	See figure 5-5 item 120
1MP116		ROLLER: plastic; 5/8 in. dia by 13/32 in. lg; incl 2 bearings; Collins Radio Company part no. 544-2692-003	See figure 5-5 item 135
1MP117		SHAFT: copper; 0.250 in. hex by 0.557 in. lg; undercut, tapped one end 4-40 and other end 2-56; Collins Radio Company part no. 544-2681-002	See figure 5-5 item 138
1MP118		SHAFT: copper; 0.250 in. hex by 0.474 in. lg; undercut; tapped one end 4-40 and other end 2-56; Collins Radio Company part no. 544-2679-002	See figure 5-5 item 139
1MP119		SHAFT: copper; 0.250 in. hex by 0.433 in. lg; undercut; tapped one end 4-40; other end 2-56; Collins Radio Company part no. 544-2678-002	See figure 5-5 item 140
1MP120		SHAFT: copper; 0.250 in. hex by 0.518 in. lg; undercut; tapped one end 4-40 and other end 2-56; Collins Radio Company part no. 544-2680-002	See figure 5-5 item 141
1MP121		RACE, COIL SUPPORT: plastic; 3.325 in. dia by 0.280 in. w; Collins Radio Company part no. 544-2688-002	See figure 5-5 item 159
1MP122		PLUG: machine thread; Collins Radio Company part no. 554-0667-002	See figure 5-5 item 422
1MP123		GASKET: circular rubber, 0.674 in. ID, 0.880 in. OD, 0.103 in. thk; Parker Seal Co. part no. AN 6227-13	See figure 5-5 item 423
1MP124		SPRING, HELICAL, COMPRESSION: stainless steel wire 0.018 in. dia; 0.118 in. OD, 0.750 in. h, 1.281 in. free lg; 40 active turns; Collins Radio Company part no. 543-9821-002	See figure 5-5 item 159C

TABLE 6-1. ANTENNA COUPLER GROUP AN/SRA-22, MAINTENANCE PARTS LIST (Cont)

ANTENNA COUPLER CU-714/SRA-22

REF. DESIG.	NOTES	NAME AND DESCRIPTION	LOCATING FUNCTION
1MP125		HUB: aluminum; 0.250 in. ID, 13/16 in. OD; flatted one side to 0.656 in. w; 1/4 in. h overall; tapped for securing; Collins Radio Company part no. 543-9914-002	See figure 5-5 item 240
1MP126		INSULATOR, PLATE: plastic; 3/16 in. by 1.562 in. by 1.718 in. overall; Collins Radio Company part no. 543-9958-002	See figure 5-5 item 245
1MP127		CAM, STOP: aluminum; 0.250 in. by 0.870 in. by 0.875 in. approx overall; Collins Radio Company part no. 543-9823-002	See figure 5-5 item 258
1MP128		ACTUATOR, STOP: stainless steel; incl hub and hardware; 0.281 in. by 0.655 in. by 0.732 in.; Collins Radio Company part no. 543-9948-002	See figure 5-5 item 261
1MP129		STOP ASSEMBLY, DRUM: c/o 1 soldered drum stop; 0.063 in. by 0.75 in. by 2.125 in.; Collins Radio Company part no. 547-3773-003	See figure 5-5 item 282
1MP130		GEAR-SHAFT ASSEMBLY: c/o stainless steel shaft, 1 hub and 1 spur gear w/135 teeth, 20 degree pressure angle, 0.0937 in. w face; 1.427 in. dia by 0.750 in. lg overall; Collins Radio Company part no. 544-0035-002	See figure 5-5 item 366
1MP131		BEARING: same as 1MP70	See figure 5-5 item 394
1P1 thru 1P6		NOT USED	
1P7		CONNECTOR, PLUG, ELECTRICAL: 24 rd female contacts, 500 v ac, 700 v dc, 22 amps; straight shape; MIL-C-5015 MS3106E-24-28S	1J7 mating end
1P8		CONNECTOR, PLUG, ELECTRICAL: 1 rd male contact, 50 ohms; single shape; Automatic Metal Products Co. part no. RF 0235	1J8 mating end
1P9		CONNECTOR, RECEPTACLE, ELECTRICAL: low loss plastic dielectric; Cannon Elect. part no. DEF-9S-1	Blower receptacle
1P10		PIN, OUTPUT: brass; 0.750 in. dia; undercut and grooved; 1.187 in. lg overall; Collins Radio part no. 544-0102-00	1J10 mating end
1R1 thru 1R5		NOT USED	

TABLE 6-1. ANTENNA COUPLER GROUP AN/SRA-22, MAINTENANCE PARTS LIST (Cont)

ANTENNA COUPLER CU-714/SRA-22

REF. DESIG.	NOTES	NAME AND DESCRIPTION	LOCATING FUNCTION
1R6		RESISTOR, VARIABLE, LINEAR PRECISION: 1 section; 100 ohms ±5%; 0.5% max linearity; 1.5 w at +65°C; rotary motion shaft type, 360 degree rotation, 10 degree overtravel, phenolic case; Spectrol part no. 500-487	Coil indicator pot.
1R7		RESISTOR, VARIABLE: same as 1R6	Tap indicator pot.
1S1 thru 1S7		NOT USED	
1S8		SWITCH, THERMOSTATIC: contacts close on temp rise; +65°C differential bimetal element; Fenwal type 67321	Temperature control
1S9		ROTOR, ELECTRICAL, SWITCH: approx 3/4 in. by 1.593 in. by 2.187 in. overall; incl ground strip assy and high voltage strip assy; Collins Radio Company part no. 543-9965-002	H-v rotor assembly switch
1S10		SWITCH SECTION, ROTARY: phenolic insulation; brass silver contacts; 230 v max ac, dc, 0.25 amp; Oak Mfr Co. type MF	Capacitor drive
1S11		SWITCH SECTION, ROTARY: phenolic insulation; silver alloy contacts; 230 v max ac, dc, 0.25 amp; Oak Mfr Co. type A	Capacitor limit switch

TABLE 6-1. ANTENNA COUPLER GROUP AN/SRA-22, MAINTENANCE PARTS LIST (Cont)

COUPLER CONTROL C-2698/SRA-22

REF. DESIG.	NOTES	NAME AND DESCRIPTION	LOCATING FUNCTION
Unit 2		CONTROL, COUPLER: controls tuning capacitor position & series-shunt switch, coil position & tap control, power output switch & output selector switch; 115 v or 230 v ac, 47 to 63 cps, single phase; 5-1/4 in. by 8-3/16 in. by 19 in. overall; Collins Radio Company part no. 544-7294-00	
2A1C		COUPLER, DIRECTIONAL: transmission line type, 2 to 30 mc frequency range; bidirectional; 3-3/4 in. by 4-15/16 in. by 8-5/16 in. overall; Collins Radio Company part no. 542-4116-004	Power monitor
2A1CR1		SEMICONDUCTOR DEVICE, DIODE: CBS-Hytron part no. 1N82A	Rectifier
2A1CR2		SEMICONDUCTOR DEVICE, DIODE: same as 2A1CR1	Rectifier
2A1C1		CAPACITOR, VARIABLE, AIR DIELECTRIC: concentric type; 0.5 uuf min, 3.0 uuf max; Corning Glass Works part no. 682011	Divider
2A1C2		CAPACITOR, VARIABLE, AIR DIELECTRIC: same as 2A1C1	Divider
2A1C3		CAPACITOR, FIXED, MICA DIELECTRIC: 500 v dc; 500 uuf ±20%; Erie Resistor type 370	Divider
2A1C4		CAPACITOR, FIXED, MICA DIELECTRIC: same as 2A1C3	Divider
2A1C5		CAPACITOR, FIXED, CERAMIC DIELECTRIC: 500 v dc working; 75 uuf ±2%; JAN-C-20A CC30VJ7506	Phase corrector
2A1C6		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 2A1C5	Phase corrector
2A1C7		CAPACITOR, FIXED, CERAMIC DIELECTRIC: 500 v dc working; 1000 uuf +80% -20%; Erie Resistor type 327	D-c line filter
2A1C8		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 2A1C7	D-c line filter
2A1C9		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 2A1C7	D-c line filter
2A1C10		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 2A1C7	D-c line filter

TABLE 6-1. ANTENNA COUPLER GROUP AN/SRA-22, MAINTENANCE PARTS LIST (Cont)

COUPLER CONTROL C-2698/SRA-22

REF. DESIG.	NOTES	NAME AND DESCRIPTION	LOCATING FUNCTION
2A1J1		NOT USED	
2A1J2		CONNECTOR, RECEPTACLE, ELECTRICAL: low loss plastic dielectric; MIL-C-71A UG-58A/U	Transmitter input
2A1J3		NOT USED	
2A1J4		NOT USED	
2A1J5		CONNECTOR, RECEPTACLE, ELECTRICAL: same as 2A1J2	Load input
2A1L1		COIL, RADIO FREQUENCY: 3 universal wound pie sections, 75 turns ea; no. 36 AWG single silk enamel or single nylon enamel copper wire, approx 220 uh, 0.1 ampl Jeffers Elect. Collins Radio Company part no. 240-0037-00	R-f choke
2A1L2		COIL, RADIO FREQUENCY: same as 2A1L1	R-f choke
2A1R1		RESISTOR, FIXED, FILM: 10 ohms, ±1%; 1/2 w; MIL-R-10509 RN20X10ROF	Toroid transformer load
2A1R2		RESISTOR, FIXED, FILM: same as 2A1R1	Toroid transformer load
*2A1R3		RESISTOR, FIXED, FILM: 4,750 ohms ±1%; 1/4 w; MIL-R-10509 RN65B4751F	Meter calibration
*2A1R3		RESISTOR, FIXED, FILM: 4,870 ohms ±1%; 1/4 w; MIL-R-10509 RN65B4871F	Meter calibration
*2A1R3		RESISTOR, FIXED, FILM: 4,990 ohms ±1%; 1/4 w; MIL-R-10509 RN65B4991F	Meter calibration
*2A1R3		RESISTOR, FIXED, FILM: 5,110 ohms ±1%; 1/4 w; MIL-R-10509 RN65B5111F	Meter calibration
*2A1R3		RESISTOR, FIXED, FILM: 5,230 ohms ±1%; 1/4 w; MIL-R-10509 RN65B5231F	Meter calibration
*2A1R3		RESISTOR, FIXED, FILM: 5,360 ohms ±1%; 1/4 w; MIL-R-10509 RN65B5361F	Meter calibration
*2A1R3		RESISTOR, FIXED, FILM: 5,490 ohms ±1%; 1/4 w; MIL-R-10509 RN65B5491F	Meter calibration
*2A1R3		RESISTOR, FIXED, FILM: tubular; 5,620 ohms ±1%; 1/4 w; carbon film; 0.05%/°C; 3/16 in. dia by 5/8 in. lg; MIL-R-10509 RN65B5621F	Meter calibration
*2A1R3		RESISTOR, FIXED, FILM: 5,760 ohms ±1%; 1/4 w; MIL-R-10509 RN65B5761F	Meter calibration
*2A1R3		RESISTOR, FIXED, FILM: 5,900 ohms ±1%; 1/4 w; MIL-R-10509 RN65B5901F	Meter calibration
*2A1R3		RESISTOR, FIXED, FILM: 6,040 ohms ±1%; 1/4 w; MIL-R-10509 RN65B6041F	Meter calibration

*Per operational requirement

TABLE 6-1. ANTENNA COUPLER GROUP AN/SRA-22, MAINTENANCE PARTS LIST (Cont)

COUPLER CONTROL C-2698/SRA-22

REF. DESIG.	NOTES	NAME AND DESCRIPTION	LOCATING FUNCTION
*2A1R3		RESISTOR, FIXED, FILM: 6,190 ohms ±1%; 1/4 w; MIL-R-10509 RN65B6191F	Meter calibration
*2A1R3		RESISTOR, FIXED, FILM: 6,340 ohms ±1%; 1/4 w; MIL-R-10509 RN65B6341F	Meter calibration
*2A1R3		RESISTOR, FIXED, FILM: 6,490 ohms ±1%; 1/4 w; MIL-R-10509 RN65B6491F	Meter calibration
*2A1R3		RESISTOR, FIXED, FILM: 6,650 ohms ±1%; 1/4 w; MIL-R-10509 RN65B6651F	Meter calibration
*2A1R3		RESISTOR, FIXED, FILM: 6,810 ohms ±1%; 1/4 w; MIL-R-10509 RN65B6811F	Meter calibration
*2A1R3		RESISTOR, FIXED, FILM: 6,980 ohms ±1%; 1/4 w; MIL-R-10509 RN65B6981F	Meter calibration
2A1R4		RESISTOR, FIXED, FILM: same as *2A1R3	Meter calibration
*2A1R5		RESISTOR, FIXED, FILM: 51.1 ohms ±1%; 1/4 w; MIL-F-10509 RN65B51R1F	Meter calibration
*2A1R5		RESISTOR, FIXED, FILM: 100 ohms ±1%; 1/4 w; MIL-R-10509 RN65B1000F	Meter calibration
*2A1R5		RESISTOR, FIXED, FILM: 147 ohms ±1%; 1/4 w; MIL-R-10509 RN65B1470F	Meter calibration
*2A1R5		RESISTOR, FIXED, FILM: 196 ohms ±1%; 1/4 w; MIL-R-10509 RN65B1960F	Meter calibration
*2A1R5		RESISTOR, FIXED, FILM: 249 ohms ±1%; 1/4 w; MIL-R-10509 RN65B2490F	Meter calibration
*2A1R5		RESISTOR, FIXED, FILM: 301 ohms ±1%; 1/4 w; MIL-R-10509 RN65B3010F	Meter calibration
*2A1R5		RESISTOR, FIXED, FILM: 348 ohms ±1%; 1/4 w; MIL-R-10509 RN65B3480F	Meter calibration
*2A1R5		RESISTOR, FIXED, FILM: 402 ohms ±1%; 1/4 w; MIL-R-10509 RN65B4020F	Meter calibration
*2A1R5		RESISTOR, FIXED, FILM: tubular; 464 ohms ±1%; 1/4 w; MIL-R-10509 RN65B4640F	Meter calibration
*2A1R5		RESISTOR, FIXED, FILM: 511 ohms ±1%; 1/4 w; MIL-R-10509 RN65B5110F	Meter calibration
*2A1R5		RESISTOR, FIXED, FILM: 562 ohms ±1%; 1/4 w; MIL-R-10509 RN65B5620F	Meter calibration
*2A1R5		RESISTOR, FIXED, FILM: 619 ohms ±1%; 1/4 w; MIL-R-10509 RN65B6190F	Meter calibration
*2A1R5		RESISTOR, FIXED, FILM: tubular; 681 ohms ±1%; 1/4 w; MIL-R-10509 RN65B6810F	Meter calibration
*2A1R5		RESISTOR, FIXED, FILM: 750 ohms ±1%; 1/4 w; MIL-R-10509 RN65B7500F	Meter calibration

*Per operational requirement

TABLE 6-1. ANTENNA COUPLER GROUP AN/SRA-22, MAINTENANCE PARTS LIST (Cont)

COUPLER CONTROL C-2698/SRA-22

REF. DESIG.	NOTES	NAME AND DESCRIPTION	LOCATING FUNCTION
*2A1R5		RESISTOR, FIXED, FILM: 825 ohms ±1%; 1/4 w; MIL-R-10509 RN65B8250F	Meter calibration
*2A1R5		RESISTOR, FIXED, FILM: 909 ohms ±1%; 1/4 w; MIL-R-10509 RN65B9090F	Meter calibration
*2A1R5		RESISTOR, FIXED, FILM: 953 ohms ±1%; 1/4 w; MIL-R-10509 RN65B9530F	Meter calibration
*2A1R5		RESISTOR, FIXED, FILM: 1000 ohms ±1%; 1/4 w; MIL-R-10509 RN65B1001F	Meter calibration
2A1R6		RESISTOR, FIXED, FILM: same as *2A1R5	Meter calibration
2A1T1		COIL, RADIO FREQUENCY: 60 turns of no. 30 AWG, toroidal wound; Collins Radio Company part no. 542-0916-002	R-f transformer
2A2		PROTECTOR, VSWR: reflected power overload protective circuit; Collins Radio Company part no. 553-2431-003	VSWR protector
2A2C1		CAPACITOR, FIXED, ELECTROLYTIC: 2.2 uf, ±20% v dc working; Collins Radio Company part no. 184-7377-00	Audio filter
2A2C2		CAPACITOR, FIXED, PAPER: 0.68 uf; Collins Radio Company part no. 951-1041-00	Relaxation oscillator
2A2CR1		SEMICONDUCTOR DEVICE, DIODE: silicon, type 1N457; Collins Radio Company part no. 353-2575-00	Bias rectifier
2A2CR2		SEMICONDUCTOR DEVICE, DIODE: Zener; silicon; type 1N963B; Collins Radio Company part no. 353-3085-00	Bias regulator
2A2CR3		SEMICONDUCTOR DEVICE DIODE: silicon, type 1N647; Collins Radio Company part no. 353-2852-00	Rectifier, relay oscillator
2A2CR4		SEMICONDUCTOR DEVICE: PNPN CONTROLLED RECTIFIER: silicon, type 2N886; Collins Radio Company part no. 353-3369-00	Alarm semiconductor
2A2K1		RELAY, ARMATURE: Collins Radio Company part no. 974-0821-00	Alarm relay
2A2R1		RESISTOR, FIXED, COMPOSITION: 1200 ohms, ±10%, 1 watt; Collins Radio Company part no. 745-3356-00	Bias dropping
*2A2R2 and *2A2R3		RESISTOR, FIXED, FILM: 215 ohms, ±1%, 1/8 watt; Collins Radio Company part no. 705-6564-00	Alarm calibrating

*Per operational requirement

TABLE 6-1. ANTENNA COUPLER GROUP AN/SRA-22, MAINTENANCE PARTS LIST (Cont)

COUPLER CONTROL C-2698/SRA-22

REF. DESIG.	NOTES	NAME AND DESCRIPTION	LOCATING FUNCTION
*2A2R2 and *2A2R3		RESISTOR, FIXED, FILM: 237 ohms, ±1%, 1/8 watt; Collins Radio Company part no. 705-6566-00	Alarm calibrating
*2A2R2 and *2A2R3		RESISTOR, FIXED, FILM: 261 ohms, 1%, 1/8 watt; Collins Radio Company part no. 705-6568-00	Alarm calibrating
*2A2R2 and *2A2R3		RESISTOR, FIXED, FILM: 287 ohms, 1%, 1/8 watt; Collins Radio Company part no. 705-6570-00	Alarm calibrating
*2A2R2 and *2A2R3		RESISTOR, FIXED, FILM: 316 ohms, 1%, 1/8 watt; Collins Radio Company part no. 705-6572-00	Alarm calibrating
*2A2R2 and *2A2R3		RESISTOR, FIXED, FILM: 348 ohms, 1%, 1/8 watt; Collins Radio Company part no. 705-6574-00	Alarm calibrating
*2A2R2 and *2A2R3		RESISTOR, FIXED, FILM: 383 ohms, 1%, 1/8 watt; Collins Radio Company part no. 705-6576-00	Alarm calibrating
*2A2R2 and *2A2R3		RESISTOR, FIXED, FILM: 422 ohms, 1%, 1/8 watt; Collins Radio Company part no. 705-6578-00	Alarm calibrating
*2A2R2 and *2A2R3		RESISTOR, FIXED, FILM: 464 ohms, ±1%, 1/8 watt; Collins Radio Company part no. 705-6580-00	Alarm calibrating
*2A2R2 and *2A2R3		RESISTOR, FIXED, FILM: 511 ohms, ±1%, 1/8 watt; Collins Radio Company part no. 705-6582-00	Alarm calibrating
*2A2R2 and *2A2R3		RESISTOR, FIXED, FILM: 562 ohms, ±1%, 1/8 watt; Collins Radio Company part no. 705 6584-00	Alarm calibrating
*2A2R2 and *2A2R3		RESISTOR, FIXED, FILM: 619 ohms, ±1%, 1/8 watt; Collins Radio Company part no. 705-6584-00	Alarm calibrating
*2A2R2 and *2A2R3		RESISTOR, FIXED, FILM: 681 ohms, ±1%, 1/8 watt; Collins Radio Company part no. 705-6588-00	Alarm calibrating
*2A2R2 and *2A2R3		RESISTOR, FIXED, FILM: 750 ohms, ±1%, 1/8 watt; Collins Radio Company part no. 705-6590-00	Alarm calibrating
*2A2R2 and *2A2R3		RESISTOR, FIXED, FILM: 825 ohms, ±1%, 1/8 watt; Collins Radio Company part no. 705-6592-00	Alarm calibrating

*Per operational requirement

TABLE 6-1. ANTENNA COUPLER GROUP AN/SRA-22, MAINTENANCE PARTS LIST (Cont)

COUPLER CONTROL C-2698/SRA-22

REF. DESIG.	NOTES	NAME AND DESCRIPTION	LOCATING FUNCTION
2A2R4		RESISTOR, FIXED, FILM: 75 ohms, ±1%, 1/8 watt; Collins Radio Company part no. 705-6542-00	Thermal compensating
2A2R5		RESISTOR, FIXED, COMPOSITION: 12000 ohms, ±10%, 1/8 watt Collins Radio Company part no. 745-1398-00	Audio filter
2A2R6		RESISTOR, FIXED, COMPOSITION: 270 K ohms, ±10%, 1/8 watt; Collins Radio Company part no. 745-1454-00	Relax oscillator
2A2RT1		RESISTOR, THERMAL: 100 ohms, ±10% at 25 C; Collins Radio Company part no. 714-1730-00	Thermal compensating
2A2TB1		TERMINAL BOARD: phenolic; 2-3/4 in. by 2-3/4 in. by 0.093 in; incl 16 terminals; Collins Radio Company part no. 549-5424-003	VSWR protector board
2CR1		SEMICONDUCTOR DEVICE, DIODE: JEDEC part no. 1N1084	Power supply rectifier
2CR2		SEMICONDUCTOR DEVICE, DIODE: same as 2CR1	Power supply rectifier
2CR3		SEMICONDUCTOR DEVICE, DIODE: Gen. Elect. part no. 1N536	Meter protector
2CR4		SEMICONDUCTOR DEVICE, DIODE: same as 2CR3	Meter protector
2CR5		SEMICONDUCTOR DEVICE, DIODE: same as 2CR3	Meter protector
2CR6		SEMICONDUCTOR DEVICE, DIODE: same as 2CR3	Meter protector
2C1		CAPACITOR, FIXED, PAPER DIELECTRIC: same as 1C5	Motor phase
2C2		CAPACITOR, FIXED, PAPER DIELECTRIC: same as 1C5	Motor phase
2C3		CAPACITOR, FIXED, ELECTROLYTIC: 40 v dc working; 280 uf; Sprague Elect. type 17D	Relaxation charge
2C4		CAPACITOR, FIXED, PAPER DIELECTRIC: 200 v dc working; 68,000 uuf ±20%; Sprague part no. P64510	Arc suppressor
2C5 thru 2C7		NOT USED	
2C8		CAPACITOR, FIXED, CERAMIC DIELECTRIC: 500 v dc working; 10,000 uuf +100% -20% MIL-C-11015A CK63Y103Z	Meter bypass
2C9		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 2C8	Meter bypass

TABLE 6-1. ANTENNA COUPLER GROUP AN/SRA-22, MAINTENANCE PARTS LIST (Cont)

COUPLER CONTROL C-2698/SRA-22

REF. DESIG.	NOTES	NAME AND DESCRIPTION	LOCATING FUNCTION
2C10		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 2C8	115-V a-c input bypass
2C11		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 2C8	115-V a-c output bypass
2C12		CAPACITOR, FIXED, ELECTROLYTIC: tantalum, 20 uf, ±20%, 50 v dc; General Electric Part #298572	Power supply filter
2C13		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 2C8	115-V keyed bypass
2C14		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 2C8	Interlock #1 bypass
2C15		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 2C8	Interlock #2 bypass
2C16		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 2C8	28-V input bypass
2C17		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 2C8	28-V output bypass
2C18		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 2C8	
2C19		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 2C8	
2DS1		DIAL, SCALE: 0 to 100 ccw, linear, primary; 0 to 10 ccw, linear, secondary; 100 scale div ea; chrome dials, plastic knob; George W. Borg Corp. Equip. Div. type 1326	Revolutions dial
2DS2		DIAL, SCALE: same as 2DS1	Revolutions dial
2DS3		LAMP, GLOW: neon gas; 1/25 w, 65 v ac, 90 v dc; 1-1/8 in. h overall; General Electric part no. NE-51	Capacitor run light
2F1		FUSE, CARTRIDGE: 1.0 amp, 250 v max dc, normal instantaneous; MIL-F-15160 FO2G1R00A	115-V a-c input line
2J1		CONNECTOR, RECEPTACLE, ELECTRICAL: 1 rd female contact; 70 ohms; straight shape; Industrial Prod. part no. 91025	Load output
2J2		NOT USED	
2J3		CONNECTOR, RECEPTACLE, ELECTRICAL: p/o 2K3; built in	R-f input
2J4		CONNECTOR, PLUG, ELECTRICAL: 1 female contact; straight shape; Amphenol part no. 31-205	Receiver
2J5		CONNECTOR, RECEPTACLE, ELECTRICAL: low loss plastic dielectric; Amphenol part no. 26-4401-24P	Power receptacle

TABLE 6-1. ANTENNA COUPLER GROUP AN/SRA-22, MAINTENANCE PARTS LIST (Cont)

COUPLER CONTROL C-2698/SRA-22

REF. DESIG.	NOTES	NAME AND DESCRIPTION	LOCATING FUNCTION
2J6		CONNECTOR, RECEPTACLE, ELECTRICAL: low loss plastic dielectric; Amphenol part no. 26-4402-16S	Power receptacle
2J7 thru 2J10		NOT USED	
2J11		CONNECTOR, RECEPTACLE, ELECTRICAL: p/o 2K3; built in	Transfer relay 2K3
2J12		NOT USED	
2J13		CONNECTOR, RECEPTACLE, ELECTRICAL: p/o 2K3; built in	Transfer relay 2K3
2K1		RELAY, ARMATURE: 4C; 27.5 v dc; RBM Mfr Co. part no. 22300-54	Fine tune drive
2K2		RELAY, ARMATURE: same as 2K1	Fine tune drive
2K3		RELAY, ARMATURE: 1A contact arrangement; 115 v ac or 27.5 v dc 600 w; incl 2J11 and 2J13; Aemco part no. R-83	Transfer relay
2M1		AMMETER: panel type; dc; 500 to 0 to 500 ma ±2% accuracy; Sun Meter Corp. part no. MR26W5HSDCUA OR	Tap indicator
2M1		AMMETER: dc; nonlinear; std null-indicator scale Marion Electrical Instrument Co. type no. HS-2A	
2M2		AMMETER: same as 2M1	Coil indicator
2M3		WATTMETER: 0-100 and 0-1000 w scale, ±2% deflection; 1000 ohms; Simpson Electric type 27B	Power output
2P1		CONNECTOR, PLUG, ELECTRICAL: 1 rd male contact; Automatic Metal part no. RF0235	2J1 mating end
2P2		CONNECTOR, PLUG, ELECTRICAL: same as 2P1	A1J2 mating end
2P3		CONNECTOR, PLUG, ELECTRICAL: same as 2P1	2J3 mating end
2P4		CONNECTOR, PLUG, ELECTRICAL: 1 rd male contact; Industrial Prod. part no. 85000	2J4 mating end
2P5		CONNECTOR, PLUG, ELECTRICAL: 24 flat female contacts; Amphenol part no. 26-4501-24S	2J5 mating end
2P6		CONNECTOR, PLUG, ELECTRICAL: 16 flat male contacts; Amphenol part no. 26-4502-16P	2J6 mating end
2R1		RESISTOR, VARIABLE, LINEAR PRECISION: 100 ohms ±5%; ±0.5% linearity; 2 w; Spectrol part no. 500-488	Tap indicator pot.

TABLE 6-1. ANTENNA COUPLER GROUP AN/SRA-22, MAINTENANCE PARTS LIST (Cont)

COUPLER CONTROL C-2698/SRA-22

REF. DESIG.	NOTES	NAME AND DESCRIPTION	LOCATING FUNCTION
2R2		RESISTOR, VARIABLE, LINEAR PRECISION: same as 2R1	Coil indicator pot.
2R3		RESISTOR, FIXED, COMPOSITION: 47 ohms, ±10%, 2 w; MIL-R-11 RC42GF470K	Series dropping
2R4		RESISTOR, FIXED, COMPOSITION: 470 ohms, ±10%; 1/2 w; MIL-R-11 RC20GF471K	Biasing resistor
2R5		RESISTOR, FIXED, COMPOSITION: same as 2R4	Biasing resistor
2R6		RESISTOR, FIXED, FILM: 1000 ohms, ±1%; 1/4 w; Collins Radio Company part no. 705-7069-00	Voltage dropping
2R7		RESISTOR, FIXED, WIREWOUND: 20 ohms, 5%, 5W; Dale Prod type RMS-5	Power supply filter
2R8		RESISTOR, FIXED, COMPOSITION: 15 ohms, ±10%; 1/2 w; MIL-R-11 RC20GF181K	Relay shunt
*2R9		RESISTOR, FIXED, COMPOSITION: 47 ohms, ±10%; 1/2 w MIL-R-11 RC20GF470K	
*2R10		RESISTOR, FIXED, COMPOSITION: same as *2R9	
2S1		SWITCH, ROTARY: Oak Mfr. Co. type HC	R-f selector
2S2		SWITCH, ROTARY: Oak Mfr Co. type MF	Capacitor
2S3		SWITCH, ROTARY: Oak Mfr Co. part no. 89174-185	Coil switch
2S4		SWITCH, ROTARY: same as 2S3	Tap switch
2S5		SWITCH, TOGGLE: spdt; 250 v ac at 6 amps, 30 v dc at 20 amps resistive; Jan-S-23 ST42D	Capacitor function
2S6		SWITCH, TOGGLE: dpdt; 250 v dc at 0.5 amp, 20 amp at 30 v dc, resistive, 220 v ac, 60 cps at 9 amp, 25 amp at 115 v ac resistive; MIL-S-3950A type no. MS35059-26	
2S7		SWITCH, ROTARY: Oak Mfr Co. type H	Power switch
2T1		TRANSFORMER POWER, STEP-DOWN: 115 v, 230 v, 100 w, 50 to 60 cps, single phase primary, 30 v dc, center tapped, 500 ma secondary; Chicago Std. part no. 27540	Power transformer

*These items to be used only with Marion Meter

TABLE 6-1. ANTENNA COUPLER GROUP AN/SRA-22, MAINTENANCE PARTS LIST (Cont)

COUPLER CONTROL C-2698/SRA-22

REF. DESIG.	NOTES	NAME AND DESCRIPTION	LOCATING FUNCTION
2TB1		TERMINAL BOARD: aluminum; 0.063 in. by 3 in. by 3-1/4 in.; Collins Radio Company part no. 544-7334-002	Relay board
2TB2		TERMINAL BOARD: phenolic; 1/16 in. by 1-1/16 in. by 1-11/16 in.; accommodates 4 terminals; Collins Radio Company part no. 544-7335-002	Rect. board
2TB3		TERMINAL BOARD: phenolic; 3/32 in. by 1-1/2 in. by 1-15/16 in.; incl 6 terminals; Collins Radio Company part no. 544-9417-002	Tap meter board
2TB4		TERMINAL BOARD: phenolic; 3/32 in. by 1-1/2 in. by 1-15/16 in.; incl 6 terminals; Collins Radio Company part no. 544-9419-002	Coil meter board
2XDS1 and 2XDS2		NOT USED	
2XDS3		LAMPHOLDER: for miniature bayonet base pilot light bulb; Drake Mfg Co type 50	Cap run light
2XF1		FUSEHOLDER: extractor post; 125 v, 15 amps; Bussman part no. HKP-HJR	Protection

TABLE 6-2. ANTENNA COUPLER GROUP AN/SRA-22, LIST OF MANUFACTURERS

ABBREVIATION	NAME	ADDRESS
AGX	Aemco, Inc	Mankato, Minnesota
AMP	Amphenol Electronics Corp.	Chicago, Illinois
AXD	Amplex Div. of Chrysler Corp.	Detroit, Michigan
	Automatic Metal Products Co.	Brooklyn, New York
GBS	Borg Equip. Div. of George W. Borg Corp	Janesville, Wisconsin
BUS	Bussmann Manufacturing Co.	St. Louis, Missouri
AKP	CBS-Hytron	Danvers, Mass.
CED	Cannon Electric Co.	Los Angeles, Calif.
	Chandler Evans Co.	New York, New York
	Chicago Standard Transformer Corp.	Chicago, Illinois
CR	Collins Radio Company	Cedar Rapids, Iowa
CGW	Corning Glass Works	Corning, New York
DMC	Drake Mfg. Co.	Chicago, Illinois
ERC	Erie Resistor Corp.	Erie, Pennsylvania
FEN	Fenwal, Inc.	Ashland, Mass.
GE	General Electric Co.	Schenectady, N. Y.
GML	G M Laboratories, Inc.	Chicago, Illinois
AAP	Induction Motors Corp.	Woodside, New York
IPC	Industrial Products Co.	Danbury, Conn.
JEDEC	Joint Electro Division Engr. Council	
JFE	Jeffers Electronics Corp.	St. Marys, Pa.
MAN	Marion Electric Co.	Marion, Indiana
	Marion Electrical Instrument Co.	Manchester, N. H.
NHBB	New Hampshire Ball Bearings, Inc.	Peterborough, N. H.
OAK	Oak Manfacturing Co.	Chicago, Illinois
PA	Parker Appliance Co., The	Cleveland, Ohio
RBF	R B M Manufacturing Co.	Logansport, Ind.
SATA	Sarkes-Tarzian, Inc.	Bloomington, Ind.
SIC	Simpson Electric Co.	Chicago, Illinois
	Spectrol Electronics Div. of Carrier Corp.	San Gabriel, Calif.
SPR	Sprague Electric Co.	North Adams, Mass.
	Sun Electric Corp.	Chicago, Illinois

INDEX

SUBJECT	PARAGRAPH (Figure) *Table
A	
Adjustments	5-7
Alignment-Potentiometer	5-6c
Antenna Coupler CU-714/SRA-22	1-2, 3-1a, 4-1b, 4-2b, (4-5)
Antenna Coupler Group AN/SRA-22	(1-1), 1-2, (3-1)
C	
Cables	2-2
Cable Assemblies	2-2, (2-3), (2-4), (2-5), (2-7), (2-8)
Cable Requirements	2-2, *2-1
COIL COARSE TUNE-FINE TUNE	4-2a, (4-3)
Controls	1-2
Description of	1-2a, *3-1, 3-2a, 4-1a
Location of	1-2a
Control Settings	5-3b, 5-4b, 5-6b
Coupler Control C-2698/SRA-22	1-2a, 3-1b, 4-1a, 4-2a, (4-2)
D	
Description of Controls	1-2a, *3-1, 3-2, 3-2a, 4-1a
Diode Complement	1-5c, *1-2
Directional Coupler	4-2a, (4-4)
Drawings	2-2b
Interconnecting Diagrams	2-2c, *2-1, (2-3), (2-9)
Outline Drawings	2-2b, (2-1), (2-2)
E	
Emergency Maintenance	3-3b
Symptoms of Probable Fuse Failures	3-3b, *3-3
Equipment Lists	1-5
Diode Complement	1-5c, *1-2
Equipment Supplied	1-5a, *1-1
Shipping Data	1-5d, *1-3
F	
Functional Description and Operation	3-1, 1-2
Antenna Coupler CU-714/SRA-22	1-2b, 3-1a
Coupler Control C-2698/SRA-22	1-2a, 3-1b, 4-2a, (4-2)
Functional Sections	4-2
COIL COARSE TUNE-FINE TUNE	4-2a, (4-3)
Tap and Coil Indicators	4-2a, (4-2

SUBJECT — PARAGRAPH (Figure) *Table

F (Continued)

Functional Section Trouble-Shooting Chart 5-4, 5-4c, *5-2, *5-3
Preliminary Check 5-4a

I

Illustrations
Photographs . . . . . (1-1), (2-7), (2-8), (3-1), (5-1)
Installation Requirements 2-2
Installation Pointers 2-2a
Inspection 2-3a

L

Location of Controls 1-2a

M

Maintenance Emergency 3-3b
Maintenance-Operators 3-3a, *3-2

O

Operating Procedures 3-2
Operator's Maintenance 3-3a, *3-2
Routine Check Chart 3-3a, *3-2
Outline Drawings 2-2b, (2-1), (2-2)
Over-all Functional Description 4-1, (4-1), (4-6)
Antenna Coupler CU-714/SRA-22 . . . . . 4-1b
Coupler Control C-2698/SRA-22 . . . . . 4-1a
Over-all Trouble Shooting 5-3
Preliminary Check 5-3a, (3-1), *3-3

P

Photographs . . . . . (1-1), (2-7), (2-8), (3-1), (5-1)
Potentiometer Alignments 5-6c
Precautions 3-2e
Preliminary Check 5-3a, (3-1), *3-3, 5-4a
Preparation for Reshipment 2-4

Q

Quick Reference Changes 1-4

R

Removal, Adjustment, Repair, and Reassembly of Parts and Subassemblies 5-7
Removal and Disassembly of Antenna Coupler CU-714/SRA-22 . . . . . 5-7b

SUBJECT — PARAGRAPH (Figure) *Table

R (Continued)

Removal and Disassembly of Coupler Control C-2698/SRA-22 . . . . . 5-7a
Routine Check Chart 3-3, *3-3

S

Sequence of Operation 3-2b
Shipping Data 1-5d, *1-3
Symptoms of Probable Fuse Failures 3-3, (3-1), *3-3
System Trouble-Shooting Chart 5-3c, *5-1

T

Tap and Coil Indicators 4-2a, (4-2)
Test Equipment and Special Tools 5-2
Transfer Relay and LOAD-ANT Switch 4-2a
TUNE-OPERATE Switch 4-2a
Tuning and Adjustment 5-6
Tuning and Loading 4-2a
Tuning and Radio Set AN/URC-32 and Antenna Coupler Group AN/SRA-22 . . . . . 3-2b, 3-2c
Typical Troubles 5-5, *5-6
Typical Tuning Chart 3-2c, (3-3)

U

Unpacking and Handling 2-1

V

Voltage and Resistance Measurements 5-4d, *5-4, *5-5